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EDITORIAL.

OBSESSIONS AS OBSTACLES IN OUR CIVILIZATION.

Students of the tendencies which are accelerating or impeding our social evolution were fully prepared that before long, the dire situations into which so many of our newer developments in medical science were being dragged by the misplaced enthusiasm of frenetic obstructionists, would be explained on grounds which would easily elucidate to the right-minded the emptiness of many supposedly sincere agitations. If we would really understand why the welfare of horses, dogs and cats are matters of genuine solicitation on the part of a goodly number of men and women, the key of the enigma is to be found in that special constitutional psychasthenic state which has recently been described at length by Raymond, Janet and Dana.* That zoophil-psychosis is a real condition may account for many of the untoward symptoms of the rampant and truculent invective with which many antivivisectionists have brodered their perennial talk; and accepting this scientific theory as a fact, it behooves us to remain quite placid in the face of all those denunciations which have heretofore upset even the most obtund among us, when attacks on our gross materialism have been made. Now although a stubborn front, breathing, as perforce it must, a callous indifference to onslaughts ought to place us beyond debatable land, it cannot effect so desirable a change until certain investigators cease to encourage nonsensical sophistry. Contrary to accepted opinion, the inflaming of the imagination of the thinking element in various communities, does not come, as so many suppose, from that lower walk of intellectual life which we scorn to consider, but from men who, although possessed of scientific activities, direct them to such weighty subjects as the mind of

*The Zoophil-Psychosis. A Modern Malady; with Illustrative Cases. By Charles L. Dana, M. D., LL.D. *Medical Record*, March 6, 1909.

anthropoid apes,¹ what is instinct,² the hysteria of animals,³ the intelligence and instinct of birds,⁴ and our idea of instinct, its past and present significance.⁵

The influences which are born of an intellectual exaltation which makes much of the aspiration to arrive at definite results in regard to the mentality of animals and the quality of their powers of memory, reflection and reason, are just those influences that are eagerly studied by all who, whether psychasthenic or not, feel that their mundane careers are really only worth while when their sympathies are withdrawn from their fellow-beings and bestowed on certain ornaments of the animal world. Just at present gorillas, dogs and cats are enjoying a popularity which former years of considerable adulation did not grant them. As is known to all students of Plutarch, that wise Greek was not averse from attributing to animals not only reflection and reason, but friendship and the various affections which have made man a civilized entity. And even before his time, the Epicureans were moved in a like sentimental manner when studying the higher attributes of animals. In fact, the movement on behalf of those of the brute creation who are hampered by our ignorance of their intellects, had in each succeeding century champions to spare, and if we mention only Montaigne's name, it is because we take it moderns are more familiar with him than with others of lesser fame. But these great ideas, instinct with all the mistaken opinions of erratic humanitarians and explosive antivivisectionists, were blotted out for a short space of time when in 1897 Erich Wasmann's book "Instinkt und Intelligenz im Tierreich" was published. Wasmann drew upon him the anathemas of the proclaimers of the same rights for animals as for man, by reiterating the reactionary dictum, that man alone has intelligence and reason, while animals are greatly inferior on account of possessing only instinct. This firebrand lit up an acrimonious controversy, which noisily blazed its way from the scientists to those who are just outside the magic circle of ponderous dissertations, and then illumined even the small fry who walk in the sort of darkness generally inimical to the fructification of dissenting ideas. Had the controversy, after many tiresome stages, passed into a partial unification of ideas—that is, an approach to a truce—with honors for both sides, and above

¹Die Psyche des Menschenaffen. Dr. Alexander Sokolowsky. Die Umschau, January 23, 1909.

²Was ist Instinkt? Univ. Prof. Dr. H. E. Ziegler. Die Umschau, March 13, 1909.

³Hysterie bei Tieren? Dr. Vageler. Die Umschau, January 9, 1909.—Hysterie der Tiere? Geheimrat Prof. Dr. F. A. Kehrler. Die Umschau, February 20, 1909.

⁴Der Vögel Instinkt und Verstand. Dr. J. Gengler. Die Umschau, March 4, 1908.

⁵Der Begriff des Instinktes einst und jetzt. Zoolog. Jahrbücher, Suppl. Bd. 7.

all peace for an already weary world, it could have been classed with other discussions that have stirred the stagnant waters of conventional life on the surface; but instead of following this sort of precedent, it produced the large and disorderly idea of antivivisection. And it is not getting beyond the bounds of reason and entering the realm sacred to chimeras, to state with emphasis, that without the scientific talk as to whether gorillas, dogs, horses, or cats act by instinct or by reason of an intelligence almost equal to man's, the emotionalism which is the pinion upon which the disciples of antivivisection soar skywards would never have had the power to command which it has to-day.

A commonplace of thought with all of us is that were it not for the lowly notions of what we are gracious enough to dub as "the common folk," the prejudicial views of the higher flights of medical science would not obtain. We console ourselves, when attacks are made on our advances, by saying that opposition must be expected from quarters which have never benefited by the rigorous instruction that can only be derived from an atmosphere imbued with what science ought to stand for. But though the antagonism may at times be attributed to the intellectual outcasts, to make them responsible for the raising of the many stumbling-blocks, requires much modification to bring the statement into accord with the facts. The work of the class of writers we have mentioned is doing much more to contravene the movement towards the alleviation of human suffering by experiments in vivisection, than all the fustian talk wranglers of small note may indulge in. For by attributing to animals a semblance to the higher attributes of man, there is created a feeling, among those whose emotionalism is woven out of small intellectual frenzies, which is the best barrier that could be opposed by any master-builder to progress on lines at present greatly to be desired. In fact, of the two specimens of modern man which we have discussed, who can gainsay that the supposedly well-balanced scientist is not more blameworthy than the individual who is laboring under the burden of an obsessive psychosis that manifests itself in an inordinate consideration, if not affection, for animals?

THE CULTUS OF LONGEVITY.

If any fact stands out clearly from other facts, with their frayed and worn edges, it is this—that we are almost light-hearted at the present time in our contemplation of old age, that bugbear of an earlier generation which sooner or later beset its victims in such a manner as to deprive them of their physical resistance to cope with disease. Just as

some decades back, a spiritualistic book was written with the talismanic title "There Is No Death," the present concept that buoys up our drooping spirits is blazoned forth in hopeful words that must be the right sort of stimulus, since they carry the promise of an almost complete obliteration of the disadvantages incident to old age, and of a span of life far beyond the time allotted by the Psalmist. This stride in the direction of an ideal state is not as yet *un fait accompli*; and though the impatient may complain of this, on the ground that some of the hopes held out have failed of realization, enough interest has been evidenced in the cherished plan of exterminating the incubus of physical, mental and social inconveniences, to warrant a pause to all those unphilosophic doctors who lumber on from precedent to precedent, with no thought of how more effective, in certain conditions, is a change in one's mental habit, one's physical and dietary habits, than is the little pill they have aureoled into a panacea.

Of the many expressions on this vital subject, the last word has surely been written by Dr. J. L. Nascher, in his paper "Longevity and Rejuvenescence," in the *New York Medical Journal* of April 17, for with a patience most commendable he unfolds all those details which cannot but be of vast importance in the campaign against the inroads of old age. The senile changes in the blood vessels and in the digestive organs receive the usual attention that is bestowed on them in all articles on old age, and though they are not really relegated to a place of secondary importance, so cunning is the writer's art that we realize upon finishing his paper, how equally important are his new and galvanizing ideas. These thoughts which really give body and interest to the paper have a simplicity that is most alluring; and, moreover, have the high virtue of getting us away from a contemplation of the great inevitable of old age—arterio-sclerosis with all its anticipatory mental depressions—by an appeal to the unalloyed thought that was advocated by Rousseau when he gave to the world his famous dictum "Back to Nature." But even a higher conception than what educators to-day deprecate as Rousseauism, is advanced by Dr. Nascher; for, being a very modern medico-sociologist, he does not dally long with the education of youth, as Rousseau did when he opposed the restraints an age's artificiality placed upon it, but marshals his forces against certain iron-clad customs which a conventional world has imposed on its denizens. One quotation will suffice to show how uncomplicated is the process by which rejuvenescence can be achieved: "A more important mental factor in creating the feeling of age is enforced seriousness and dignity, which become in time habitual and restrain the person from such recreations which would best overcome the mental and physical fatigue of their vocations.

An elderly physician went to a masked ball disguised as a school boy. He played marbles, spun a top, and played with others similarly masked. For weeks afterwards he was in a joyous humor, more active and brighter than he had been in years. We decry the old maid who dresses as a young girl and seeks her companions among the young. One of them said she felt young because she tried to feel young by dressing and acting as a young person. She knew the secret of rejuvenescence."

Metchnikoff, in his "Prolongation of Life," has much to say about the optimism of Goethe when he was a septuagenarian. As every student of the poet's life knows, the playing of marbles or the spinning of tops did not enter largely into his daily avocations; therefore, there must have been other incentives to rejuvenate him into a state not at all commensurate with his years. According to Metchnikoff, the poet was not proof against certain temptations, which an unkind world thinks should be dismissed even before the cataclysm of four-score and ten. In fact, so revivifying were the impressions received from a decidedly long and uninterrupted acquaintance with a number of women, poetically known as Egerias, that when Goethe decided to marry Ulrique von Lewetzow, their ages being respectively 74 and 19, there was no consternation in his circle of friends. But he had reckoned without his own family; and they, not really appreciating how interference would bring on arteriosclerosis by causing the poet to grieve intensely over shattered hopes, prevented the marriage. Viewing this dire situation through the glasses of sanity, one would think that the interference was not a matter that should be heavily scored by later historians; but Metchnikoff thinks otherwise, for in the chapter, "Goethe's Old Age," he shows with rare pathos how destructive of rejuvenescence was the stroke the poet received when preventive measures to his marriage were instituted, and why his undermined constitution fell a victim to disease at the early age of 83!

Rousseau and Pinel were no mean reformers; the one, as champion of natural mental growth, instead of spoken injunctions and prohibitions; the other, as abolisher of gags, chains, and dark cells. They fought a valiant battle on behalf of the oppressed, and benefited the world. But when reformers take unto themselves the cause of the liberation of old age from what they suppose are trammels, and introduce for its accomplishment the fatuous theories of which Dr. Nascher, and many other satellites of the great Russo-Frenchman, Metchnikoff, are ardent advocates, they are merely presenting a travesty of the matter. Just because a man or woman is beyond the meridian of life is no reason for a cloistered existence for the former, or the garb of an old woman for the latter; but, on the other hand, is it the critical period when, by playing

the games of a six-year-old, or assuming the dress and deportment of a young girl, some, if not all, of the physical and mental disadvantages of increasing years will be abolished?

THE MEDICAL STUDENT AND HIS ORTHOGRAPHY.

A trumpet-blast of no uncertain sound has recently been dealt out by Dr. George Dock* on the important subject of the many deficiencies that scintillate from the misconstrued words which medical students write with a facility that must be the envy of all other students. It is not necessary that we should follow in detail the many verbal irregularities which the writer's indignation prompts him to print, to warrant the assertion that what he says is true; but though his sufferings are keen when brought face to face with the matter of quite senseless verbal butcheries that cannot lay even the slightest claim to that balm of many bad spellers—the insinuating and invincible charms of phonetics—we cannot but believe that in limiting himself to the medical student, he narrows the subject to such slender proportions that all thought of its cosmic interpretation is lost sight of. And by cosmic interpretation we mean an inclusion that embraces all students who, having passed beyond the stage of monosyllabic words, are called upon by their multifarious studies to grapple with orthographic intricacies. These are not of so small a number that they may be dismissed by the critic with but a few words, for their triumphant growth has the sort of prolificacy which marks each decade, or even each lustre, as another advance in the increase of verbal perturbants that more securely assure our upset.

It is well in its way to fasten on “an imperfect technical training” the sins of commission that pertain to writing measles “measels,” and pus “puss;” and though the simplicity of these words should offer no excuse for any malformations, it should not be forgotten that the mind of the medical student is sown not only with these scientific verbal beginnings, but is made compulsory host to the most variegated and complicated technical terms human ingenuity has fashioned for the discomfiture of the normal mind. Now “technical training” is a matter of considerable importance, and one productive of much good for him who reaps from this educational asset, benefits which are not to be underestimated; but when this is said enough praise has been meted out, for while there can be no denial of its value as a means to a happy end,—a conveyer so to speak of a knowledge of roots that cannot but assist

*Spelling as an Index to the Preparation of the Medical Student. George Dock, M. D. *Journal of the American Medical Association*, April 10, 1909.

in the proper spelling of words,—we doubt if a mastery over this sort of training would perfect the medical student in the way desired by Dr. Dock. For this rather unfortunate exponent of modern medical education is almost daily requested to assimilate some technical term but lately put forth by a German scientist and greedily appropriated by some imitative American in a medical paper. So often is this done that our medical journals fairly bristle with technicalities, and their ruthless use by the many who imagine a complicated technical term of greater importance than a simpler one that might be mistaken for Anglo-Saxon ineptitude, is so striking a quality of latter-day medical literature as instanced in our publications, that to ask the medical tyro properly to digest all that is required of him in the way of orthography, is taking but small account of his mentality. Human endeavor has its limitations with regard to medical instruction, as it has in other walks of life, and though some proddings which are dealt out to the medical student should be encouraged, there are others which seem supererogatory since they come from men who are perched in the clouds. And surely the lament on the inaccuracies pertaining to the spelling of technical terms must be classed with those other exactions of the modern educator which proclaim him visionary and martinet.

Apart from what a technical training would stand for in making a student less inadaptably to the exigencies of a correct medical orthography, it would be well here to ask the pertinent question: How many doctors, who lay claim to an education of some pretention, are really prepared to commit their technical thoughts to paper without first consulting their favorite dictionary? And after the trying and somewhat exasperating period devoted to the wholesome pastime of "looking up the spelling and meaning of a word," is the resultant mental state so gratifying that imitation on the part of others should be encouraged? Any one who has dwelt cheek by jowl with these special purveyors of knowledge can attest to a mental discomfiture, with peculiarities that only extraordinary will-power can assuage. This is not said as a warning against a limited indulgence in the matter of referring to medical dictionaries for illumination, for that sort of mental exercise is sound and healthy, but to those supreme efforts towards which an overpowering ambition sweeps one when orthographic perfection is the fascinating goal that lures one on. A few hardy investigators of words have achieved success, plus a mental peace greatly to be envied; but against these few successes one can array a formidable list of disheartened mariners whose fortitude, approaching a state of temerity, drove them into the un-

chartered seas of verbal intricacies only to shipwreck them in the shoals of multifarious technical terms of unmistakable foreign origin.

The English language has complications enough without the importation of extraneous matter that needs years of careful tending and pruning to make it an integral part of our common speech. An arbitrary ornament, when not too excessively used, may lend some effulgence to an otherwise flat and insipid form of speech or writing; but that it should be reckoned as an essential element, especially in its bustling and noisy youth when its hall-mark is that of a deprecatory foreignness, is the sort of unjust criticism of the resources of one's own language that declares for considerable ignorance. Now though the manifold introductions into our modern English have changed the old order and given place to the new, the metamorphosis is as nothing compared with the swift and vertiginous changes which the present day "medical English" is undergoing, to the confusion of even those whose pride as amateur lexicographers is the burden of many supposedly interesting conversations. And granting this to be the case, what justification can there be in an attack, be it ever so mild, on the shortcomings of the medical student because he lapses from the high standards raised by his imperious educators, when his already burdened mind is put to the so-called supreme educational test—the faultless spelling of words but newly acquired and as yet so ill-adapted for general use that some time must elapse before a careful study shall have placed the seal of approval upon them.

OPINION AND CRITICISM.

SPIRITUAL HEALING AGAIN.

No subject lends itself more readily to the sinuosities of argumentation than the many-sided and unceasingly interesting subject of healing by religious societies. What the cures have been up to the present time has not been divulged to an eager world, a discreet silence being thought more effective than a blatancy that might bring the matter into disrepute. Discretion that bespeaks modesty of an unusual order is not so common that it should invite only passing notice; but though our praise of this sterling quality is sincere, we cannot but feel that "the nervous complaints," upon whose many annoying ramifications the lambent spiritual flame was supposed to exercise its beneficent influence, are just as prevalent to-day as when the teachings of spiritual healing were first published. Doctors, like other mortals, have their weaknesses, and if there is one weakness that is peculiar to the medical profession it is the matter of statistics. And since no statistics have as yet been published to gratify this genuine medical weakness, how can the healers expect that quantum of praise which should be theirs? In other words, the willing tribute the medical community would fain lay at their feet, is withheld because of the stubborn front that evinces not the slightest indication of a *rapprochement*—a happy state to be effected by declaring a fellow-feeling for our statistical mania!

To counteract this lack of professional courtesy, both lay and medical journals teem with the *pros* and *cons* of the controversy, in the hope of convincing the most refractory of either side of their unpardonable errors. One of the latest enthusiastic defenders of the cause is Dr. A. T. Schofield, who already has to his credit a number of books* which have made some slight commotion in those easily-affected reading circles, where to "know something of medicine" is thought of greater importance than a knowledge of good literature. Now while Dr. Schofield is a genuine physician, having the privilege of writing not only M. D., but also M. R. C. S. E., after his name, he also neglects the matter of statistics; for though in his recent article, "Spiritual Healing," in the *Contemporary Review*, he promulgates such thoughts as come only from the rapt gaze that sees the exalted benefits of providential interference in disease, he does not satisfy that craving which can only be resolved into the very human curiosity to know "how many were cured and how

*The Force of Mind.—Nerves in Disorder and How to Get Them in Order.—The Unconscious Mind.

many weren't." It may be well in its way to say, as Dr. Schofield does, that "no true physician stands by his patient's bedside without reverently recognizing that the sufferer is already being treated by one greater than himself, and that his wisest course is to follow the lead given, and seek to help and not hinder the action of 'nature.' In many cases, however, this force, good and wise as it is, is not sufficient of itself to cope with the complicated disorders which are the results of an effete civilization. In a state of nature little medicine and few doctors are needed. Faith, however, can stimulate this latent power amazingly; and as is shown in hysteria, when the power is disordered, it is capable of doing almost anything with the body, producing high temperature, blisters, tumors, and other affections at will. So also with regard to cures: when this process is sufficiently energized by faith, not only functional diseases can be removed, but material objects, such as warts and varicose veins, can be made to disappear. Without this *vis medicatrix naturae* no cure is possible; the bones won't knit, the sores won't heal, while the germs kill, and diseases end fatally; but with it, energized by faith, it is difficult to set a limit to the power to cure." But granting that Dr. Schofield was sincere when he wrote the foregoing intellectually "energized" lines, we nevertheless regret to state that we are hardened against a conviction that has only the wobbly underpinnings of the Wonder-Book of strange bedside manifestations.

LITERARY NOTE.

"L'année Psychologique," edited by A. Binet, and the 1908 edition of which has just been issued by the well-known Paris publisher, Masson, is probably the most interesting periodical devoted to the study of psychology. Its chief merit lies in the fact that it rarely indulges in long-winded theoretic and abstract discussions but makes a point to deal with cases that are of interest to psychologists on account of their actuality. The salient feature of this volume is to trace all psychologic phenomena to cerebral physiology, a fact that should not be overlooked by doctors and biologists; and when one remembers Binet's clear and methodical mind, his critical judgment, and his constant desire to base his conclusions on facts that have stood the fire of a long probation and continuous study, the interest attaching to the articles selected for publication cannot be overestimated. Among the contributions that have more than a passing interest are several by Binet himself, one in particular on the intellectual development of the child; Imbert's illuminating essay on professional adynamia; and Chabot's article on the hygiene of students,—a subject that has been considerably threshed by a number of medical men, but whose prime facts are yet an unwritten page to many of our educators.

ORIGINAL ARTICLES.

RECTAL ANÆSTHESIA.

By N. B. CARSON, M. D., of St. Louis.

The frequent mention of rectal anæsthesia has of late attracted my attention sufficiently to prompt me to look into the subject, especially as there are many cases in which this method can be used with great advantage to the surgeon, as it removes the anæsthetist from the operative field, thus giving the surgeon perfect freedom in his manipulations, and diminishing the danger of infection, and other dangers which go with the inhalation of ether.

Since this method has again been called to the attention of the profession by Cunningham, by a demonstration at the meeting of the American Medical Association, June, 1906, which had been ante-dated by an article describing the method in the *Boston Medical Journal* (April 20th, 1905), the subject has been tried by a number of surgeons; and the conclusions drawn at that time have changed but little.

The idea of rectal anæsthesia was not new with Cunningham as it has been used spasmodically ever since the introduction of ether as an anæsthetic. "Pirogoff was the first to mention ether narcosis by the rectum, in his book on etherization published in 1847 in St. Petersburg." Roux, Vincente y' Yhedo, and Mare Duprey experimented, using injections of ether and water mixed, but their observations, although proving that complete anæsthesia could be accomplished by this method, are said to have created no interest at the time.

We can find no further reference to the subject in the literature until 1884 when Molière used it at l'Hotel Dieu de Lyon, and, it is said, established its merit. He used a very simple apparatus, a large bottle immersed in hot water from which a tube conducted the ether vapor into the bowel. By this method the ether vapor was carried into the rectum in large quantities. Complete anæsthesia was produced in from ten to twenty minutes, a small quantity (10 gms.) of ether being required. Differing from the efforts of those who had preceded him, Molière's work aroused a great deal of interest and we find other surgeons practicing this method, with varying results. Post and Gray, of Boston, and Wier and Bull, of New York, reported a series of cases. Wier and Bull reported nine cases, nearly all of which had bloody or simple diarrhea; of the cases thus treated one died, a healthy, robust child of

eight months, which was operated upon for harelip. The child was fully anæsthetized in three minutes, less than two ounces of ether being used. This operation was successfully completed. The child was "somewhat depressed" after the operation, but rallied under stimulants and heat. During the night it had several bloody movements and died the following morning. In another case of the series, a boy 14 years old received rectal anæsthesia for 15 minutes and although he became sleepy and the breathing stertorous, sensibility was not completely lost and etherization in the ordinary way became necessary.

Wanscher records twenty-two cases anæsthetized by injecting ether vapor into the rectum after the method suggested by Pirogoff, and speaks in most favorable terms regarding his results. He mentions one especially noteworthy case which explains the occasional difficulty in producing narcosis by the rectal method. In this case he gave rectal ether for between thirty and forty-five minutes, with no result. Knowing that the patient's bowels had not been properly cleaned out he postponed the operation, emptied the bowel and rectum of their contents, and on the following day repeated the etherization. The patient was completely etherized in thirteen minutes. There are several cases in our series that corroborate this observation, and it might be said that difficulties in rectal etherization arise only from failure to have the bowel clean.

Post reports three cases etherized, at the Boston City Hospital, by the rectal method. The first case was a man with cellulitis of the arm, with general toxic symptoms. He was completely anæsthetized in thirteen and one-half minutes. The ether was then discontinued and complete anæsthesia continued for nearly a half hour. Several hours later he had two loose movements which contained much gas. A starch and opium enema was given and no further diarrhea resulted. The second case was one which came to the hospital after having eaten a hearty breakfast. The patient received rectal ether for thirty-four minutes, at which time she was completely anæsthetized, one and three-quarters ounces of ether being used. During the etherization the abdomen became slightly distended and the gas was expelled by abdominal pressure. The patient vomited about an ounce of fluid, once following the ether. There was a normal movement from the bowel about one hour later, and subsequently two, slightly loose, movements, one of which was tinged with blood. The third case was one with hemorrhoids. Etherization was complete in fifteen minutes and a little less than two ounces of ether were used. There was no vomiting or diarrhea following the etherization.

Dr. Dudley Buxton, of London, in his book on anæsthesia, claims to have used it extensively and strongly favors its employment in suitable cases.

Freeman Allen and F. E. Garland¹ say: "So far as may be judged from the writings of observers, from the principal text-books on anæ-

¹Bryant and Buck's Surgery.

thesia, and from the experience and observations of the present writers, the method seems to be by no means without dangers. Bloody diarrhea, with collapse and death have been known to follow its use. On the other hand, Cunningham, of Boston, in 1905, reported a series of forty-one cases without deaths or untoward symptoms, and he is still using the method."

The dangers of this method, as given by some observers, which are said to be collapse, diarrhea and bloody stools, are, I think, more imaginary than real; and when the cases are analyzed we generally find that they are due to some cause other than rectal anæsthesia as is manifest in the following cases²: "A fatal case occurring after rectal anæsthesia was a patient of Dr. J. B. Eagleson, of Seattle, Wash. Being in Seattle at the time, I learned the details of the case. The patient was a child about two years old, who was operated upon a second time to perform a succeeding step in the repair of a harelip and a cleft palate. At the first operation ether was administered by inhalation. Following the operation the child presented symptoms of acetonuria and nearly died. At the second operation rectal ether was given. The narcosis was satisfactory in every way. The patient made a rapid ether recovery and was normal in every respect for two days following the operation. The patient died about twenty-four hours later, three days after the operation. The nurse was the same one that cared for the child at the previous operation, and she could see no difference in the symptoms subsequent to each operation, except that the symptoms came on earlier after the first operation. There were no bloody stools or diarrhea and the patient had been on the floor playing with other children the day following the operation. While acetone was not sought for in the urine, the quick ether recovery and normal condition existing for forty-eight hours, and the chain of symptoms following in one who had presented the same symptoms after a previous etherization, leave little doubt as to the real cause of death.

The other fatal case was in a woman sixty-three years old, etherized for Dr. Peer P. Johnson, of Beverly, Mass., who performed an operation for cancer of the neck. The patient was under ether for over two hours, and at the completion of the operation was in poor condition. The patient never rallied from the operation and died twenty-four hours later. Previous to death, she had several fecal and gaseous movements. While the first impulse would naturally be to blame the novel method of anæsthesia, it will be readily admitted that it is not unusual to have an aged patient die, as did this one, by imposing too great a tax upon an aged individual by a severe and prolonged operation."

Other dangers said to follow rectal etherization, than those mentioned, are dysentery, rectal ulcers and sloughing of the mucous membrane of the bowel. Cunningham says these dangers can be easily

²Rectal Anæsthesia. Boston Medical and Surgical Journal, Sept. 12, 1907.

explained when we consider the old method of administration, which was to place a bottle of ether in a boiling water bath and allow the vapor to be carried over into the rectum by its own expansion. By this method there was no means of appreciating the amount of ether passing into the rectum, and the ether going over at a high temperature was condensed in the tube and rectum. These dangers have been almost entirely eliminated by the introduction of improved apparatus and technique. In the Sutton apparatus, which I use, a mercury manometer has been added, on the theory that the ill results of this form of anæsthesia are due to the action of concentrated ether vapor on a mucous membrane rendered ischemic by pressure. He says our working pressure is 20 m.m. Hg., and the results following the addition of this part of the apparatus have fully justified the theoretical demand for its adoption.

The physiology of rectal anæsthesia, as given by Cunningham, is the theory advanced by Dr. M. Vejux-Tyrode, of the Pharmacological Department of the Harvard Medical School, who studied his cases, and this theory is as follows: First, a definite per cent. of ether must be present in the entire circulation to produce complete surgical anæsthesia. In human beings this amounts to a little under six volumes per cent. The rapidity with which complete narcosis results depends upon the rapidity with which the percentage of ether is brought up to nearly six volumes per cent. When ether is given by the lungs in the form of vapor it can only be administered in great dilution, unless excretion be interfered with and the percentage in the blood be raised about six volumes per cent., which would prove fatal by paralysis of the respiratory center in the medulla. On the other hand, when ether is administered by the rectum as a vapor, concentrated vapors may be given. Therefore, the chances for the rapidity of absorption and the raising of the required six volumes per cent. will take place more rapidly, while excretion may take place freely from the lungs. "This is an explanation for the rapidity with which certain of our cases have become anæsthetized."

I have been surprised in my series of cases by the rapidity of the absorption, as is evidenced by the very short time elapsing until ether can be detected upon the breath, and Cunningham accounts for the quickness with which some of his patients were fully anæsthetized by the rapidity of this absorption.

Sometimes it happens that exhalation from the lungs is more rapid than absorption, and on that account Sutton advises that the face be covered with towels so that there shall be a certain degree of rebreathing of ether-laden air, which of course diminishes the rapidity of exhalation. He also introduced a tube in the apparatus so that the vapor can be carried to the rectum and mouth at the same time until the anæsthesia is complete, when tube to the mouth can be shut off and the anæsthesia continued by the bowel. I have found that by beginning the administration of ether by inhalation and continuing it until the patient becomes partially under the influence, and then continue it by the rectum alone, we

avoid the stage of excitement, which is one of the advantages claimed for this method, and at the same time our patient escapes the smarting sensation and feeling of distension, which is a source of much complaint and is one of the disadvantages of the method. Our experience agrees with others as to the small quantity of ether used, as will be seen by referring to the records of our cases which will follow. In some of our cases I found after the operation that the "bulb" was full of ether so that it will appear as if more ether was used than was actually the case.

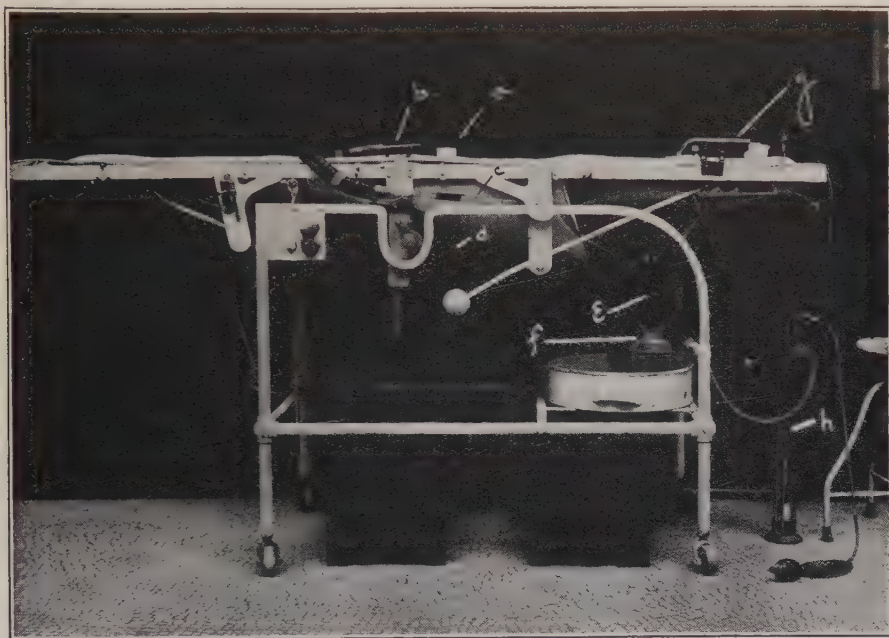


Fig. I. Modified Cunningham apparatus.

- a. Rectal tube.
- b. Branch tube connecting rectal tube with ether supply and exhaust.
- c. Glass portion of exhaust to prevent sagging and consequent collection of fluid, feces, etc.
- d. Afferent or ether supply tube.
- e. Combination clamp which closes afferent tube when opening exhaust.
- f. Tell-tale bottle filled with water so that escape of gas from exhaust may be recognized by sound.
- g. Accessory tube for administering ether under towels covering face.
- h. Ether cylinder. (In pail of warm water when in use.)

Besides the removal of the anæsthetist from the field of operation, the advantages of this method are, that there is less fatality "as the lung is free to eliminate the ether as fast as it is absorbed," and on that account it can be used safely where there is involvement of the lungs, as is proven by the case of Dr. Lecompte, of Boston, when a patient, just recovering from lobar pneumonia, was kept under the influence of ether for more than an hour, followed by no bad symptoms; and in my series of cases where case No. 1, with a tack in the left bronchus and

abscess of the lung, had been anæsthetized three times successfully by this method and with no bad symptoms following. Another great advantage of the method is absence of post-operative vomiting and intense nausea, which so often follow etherization by the mouth.

I believe, from an experience derived from four cases, that rectal etherization is especially applicable to goitre operations, on account of the small quantity of ether required, the rapidity of recovery from the effects of the ether, and the absence of vomiting.

Sutton* says he "was struck by the advantage offered by rectal anæsthesia in this class of cases, and believed that under favorable con-

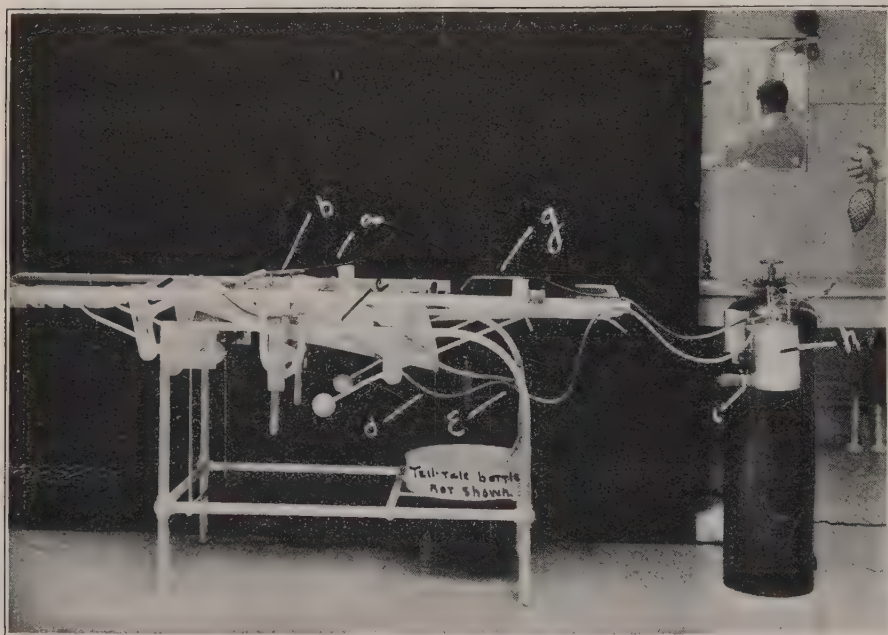


Fig. II. Apparatus for colonic anæsthesia now used at Roosevelt Hospital.

- a to g. Same as in Fig. I.
- h. New form of ether vapor generator, mounted on oxygen tank and connected at will with either oxygen or atmospheric air.
- i. Tubular incandescent lamp for maintaining temperature of water bath.

ditions it might in time supplant the slower method of cocaine."

The apparatus most used is that of Cunningham which, as will be seen from the accompanying cuts, is very simple. The one I use is Sutton's simple apparatus, which was in use at Roosevelt Hospital until a more elaborate apparatus was substituted. This apparatus I have used and found very satisfactory. As much of the success of rectal anæsthesia depends upon the technique, the

*Rectal Anæsthesia; Experimental Studies, Together with a Report of Its Practical Employment at Roosevelt Hospital. N. B. Leggett. *Annals of Surgery*, October, 1907.

anæsthetist should study it carefully and see that the patient is properly prepared and the bowel perfectly empty. We have adopted the method used at Roosevelt Hospital, and as it has proved entirely satisfactory to us when properly carried out, we will give a description of it:

For twenty-four hours before operation the patient is put on liquid diet, after a laxative, preferably castor oil, has been administered. This is followed before bedtime by an S. S. enema. The following morning, or day of operation, another S. S. enema is given. One hour before operation the rectum is washed clean by an enema of plain warm water, the nurse being cautioned to see that the bowel is entirely emptied, which

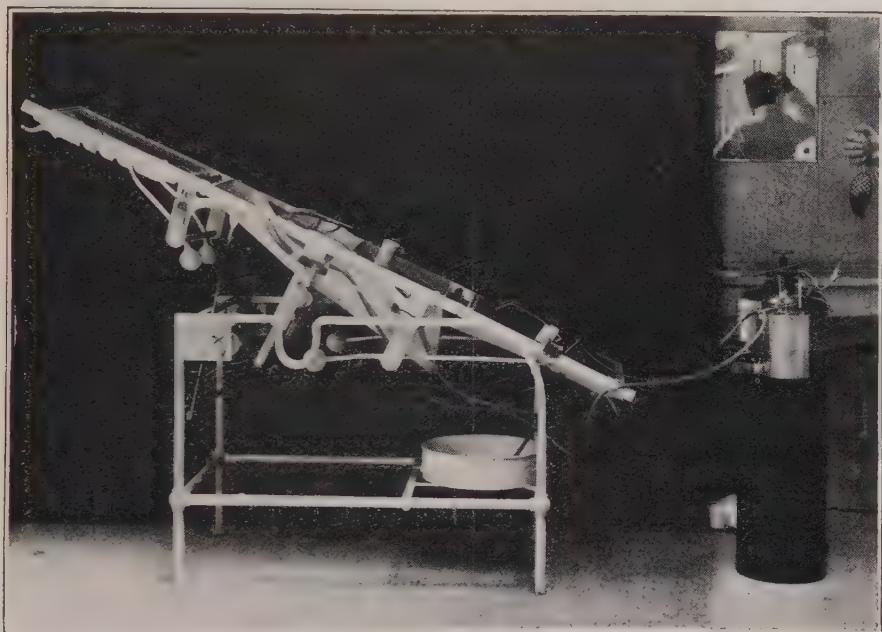


Fig. III. Showing head of table depressed without disturbing arrangement of apparatus.

will not always be done unless the nurse is accustomed to preparing patients for the rectal method, unless especially cautioned. When the patient is on the table the rectal tube is carefully inserted up to the bulb. The anæsthetist opens the efferent tube and allows the gas and bowel contents, if there should be any, to escape. The etherization should then commence by forcing the ether into the bowel by pressing upon the "cautery bulb," and rectal pressure of 20 m.m. Hg. maintained. About every five minutes the efferent tube should be opened by pressing upon the automatic clip, which at the same time closes the afferent tube and cuts off the supply of ether and allows the escape of gas. When the anæsthesia is completed, the bowel is emptied of the ether through the rectal tube, by massaging the abdomen. Some advise that the colon be filled with oxygen gas after it has been emptied of the superfluous ether

and before the rectal tube is taken out. When the patient is in bed, the rectum is again washed out with an S. S. enema, which is repeated in a half hour.

A strict adherence to this technique will prevent bad symptoms.

The following records of cases, sixteen in number, are presented as taken from the anæsthesia records. In this series there are three deaths,

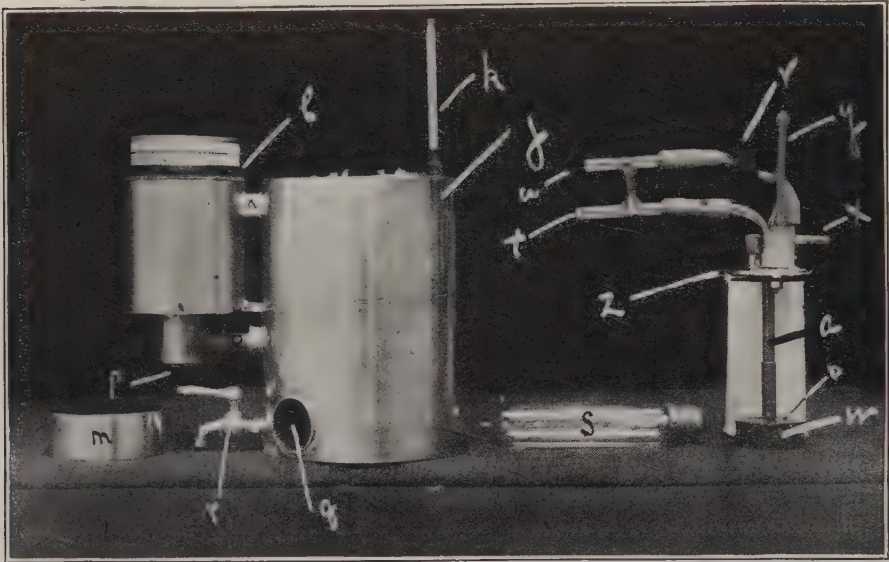


Fig. IV. Ether generator of perfected apparatus.

- j. Water jacket, encasing small ether generating chamber.
- k. Thermometer in water jacket.
- l. Ether reservoir from which ether in generating chamber is automatically replenished.
- m. Cover for above.
- n. Brass tube connecting storage chamber with generating chamber above level of ether.
- o. Glass tube connecting same below surface of ether.
- p. Head of spike for perforating seal of ether can on insertion into storage chamber.
- q. Blind tube extending into water jacket, into which heating bulb "s" is inserted.
- r. Faucet for emptying water jacket.
- s. Tubular incandescent bulb used as heater.
- z. Cover of ether generating chamber.
- t. Oxygen inlet to vapor generating chamber.
- u. Air inlet to vapor generating chamber.
- v. Clip on by-pass, by opening which pure air or pure oxygen can be passed into gut.
- w. Spiral wire of vapor generator.
- x. Connection to afferent tube to gut.
- y. Manometer.

two from surgical shock and one from medullary pressure in a brain case. One of the cases of shock was a case of cancer of the face requiring a very extensive plastic operation. The other was a case of exophthalmic goitre in very bad condition.

Case 1. Tracheotomy and bronchoscopy. A. Y., age 4 years. (Tack in bronchus.) Oil and enema preparation. Rectum contained water and rectal ether had to be supplemented with chloroform inhalation throughout. When rectal tube was removed a bloody, watery fluid escaped. S. S. enema afterwards. No irritation followed.

Case 2. Thoracotomy on same patient. Same preparation. Rectum was free from fluid and rectal ether produced quiet, complete anæsthesia in about 6 minutes. Kept under 1 hour. No inhalation. 150 gms. used. Slight bloody fluid. S. S. enema afterwards. No nausea or rectal irritation.

Case 3. Fracture of inferior maxilla. R. M., age 10 years. Patient was greatly frightened and rectal anæsthesia was supplemented by a few drops by inhalation. Patient was kept completely under for one-half hour. No rectal irritation.

Case 4. Exposure of occiput. F. B. About 100 gms. of ether were sprayed onto a mask, patient being in prone position. With 200 gms. by rectum patient was kept under for an hour. Patient lost large amount of blood, and received stimulation on the table, which was no fault of the anæsthesia. No nausea or rectal irritation.

Case 5. Exophthalmic goitre (thyroidectomy). D. C., age 28. Regular enemata. Morphine $\frac{1}{4}$, atropine 1-150 one hour before. Patient exceedingly nervous. With rectal ether and a few inhalations complete anæsthesia was produced. There was some struggling, but after once anæsthetized was easily kept under for one hour and thirty minutes. About 400 gms. of ether used. Patient lost considerable blood and received stimulants on the table. The anæsthesia was not as satisfactory as in former thyroidectomies. Slight bleeding from rectum.

Case 6. H. R. O., 27 years. Same patient as case 9. Sarcoma of axilla. Oil enemata. Morph. $\frac{1}{4}$, atropine 1-150. Patient anæsthetized by inhalation; 75 gms. to anæsthetize. Then with rectal ether patient was kept completely anæsthetized for one hour and twenty minutes with 150 gms. of ether. S. S. enema afterwards. No rectal irritation. Very little nausea.

Case 7. Thyroidectomy. C. S., 24, single, housework. Morph. $\frac{1}{4}$, atropine 1-150, one-half hour before operation. Castor oil and enemata. Rectal tube inserted; patient complained at first of burning in the rectum. A few ether inhalations and she passed quietly and quickly into unconsciousness. Mask removed and patient remained under the rectal anæsthesia throughout the operation without a struggle. Patient semi-conscious before leaving the table, very little nausea. No rectal irritation followed. No enemata.

Case 8. Thyroidectomy. E. A., age 5. Castor oil and enemata. A few inhalations to help at first. Complete anæsthesia came quietly in about 8 minutes. Inhalation stopped and rectal anæsthesia kept up without difficulty for one hour, using 230 gms. of ether. No nausea or vomiting or rectal irritation followed.

Case 9. Sarcoma (?) of axilla. H. R. O., 27 years. Oil enemata. Morph. $\frac{1}{4}$, atropine 1-300. Inhalations to supplement rectal, 300 gms. used, 50 gms. by inhalation. Time of operation one hour and fifteen minutes. No rectal irritation and very little nausea. No enema afterwards.

Case 10. Thyroidectomy. P. K., 24, housewife. Graves' disease, marked. Patient put through every detail of preparation and taken to operating room and put through every detail there. The bowel was prepared, rectal tube inserted and just enough ether given to allow the patient to smell and feel the effects of it. This was done on 4 or 5 days in succession under the name of "treatments." Morph. $\frac{1}{4}$, atropine 1-300, one-half hour before on day of operation. Patient had become acquainted with the procedure and was not nervous or frightened and the treatment was pushed a little further and anæsthesia produced, quietly and completely, in 15 minutes, without the patient's knowledge. A few inhalations were given at first but stopped when anæsthetized. Easy, quiet sleep kept up for 55 minutes; 150 grains of ether. Patient woke up in bed, did not know she had been operated upon. Very little rise in pulse. No nausea. S. S. enema. No irritation.

Case 11. Decompression. R. H., 28 years. Morph. $\frac{1}{4}$, atropine 1-120, half-hour before operation. Calomel and enemata. Patient a very large, muscular man, restless and delirious. Rectum contained some water. Rectal ether did not completely anæsthetize and mask had to be used throughout. No rectal irritation followed.

Case 12. A. Y. Thoracotomy. About 30 gms. were given by inhalation. Complete, quiet anæsthesia continued for 25 minutes. About 100 gms. used altogether. Perfectly satisfactory, no irritation and very little nausea.

Case 13. Mr. C. Resection of tuberculous glands of neck. Rectal anæsthesia supplemented by inhalations. Quiet and complete anæsthesia produced and continued for 1 hour and 30 minutes. About 50 gms. by inhalation; about 150 gms. by rectum. - No irritation and very little nausea followed. Patient was a large, muscular, active, young farmer boy of 21 years. This was one of the most beautiful and satisfactory anæsthesias ever seen in an adult.

Case 14. Miss B. Thoracotomy. Combination inhalation and rectal anæsthesia. Complete and quiet anæsthesia produced and continued for 30 minutes. About 40 gms. by inhalation; about 75 gms. by rectum. No irritation and only slight amount of nausea followed.

Case 15. Mrs. R. Operated April 8, 1909. Duration one hour. Inhalation 70 gms. ether; rectal 100 gms. ether. No nausea. No rectal irritation. Quick ether recovery.

Case 16. Mrs. N. April 14, 1909. Amputation of breast and axillary glands. Ether inhalation 70 gms., ten minutes; rectal, 130 gms., one and one-half hours. Vomited twice. Quick ether recovery. No rectal irritation.

Besides the above cases we had two cases at the Skin and Cancer Hospital, one of which, above referred to, died. In these cases the method failed on account of improper preparation so that the rectal method was discontinued and inhalation substituted.

The more we use this method of producing anæsthesia the more we are convinced that its application in properly prepared cases has many advantages over the inhalation method.

The following personal communications from Dr. Sutton contain many valuable suggestions in connection with the construction of the apparatus for the application of rectal anæsthesia, and therefore we present the letters for the information of those who are interested in the subject:

DR. N. B. CARSON,

Humboldt Bldg., St. Louis.

Dear Sir: Dr. Blake has handed me your letter of the 10th inst., with the request that I give you the information you desire on apparatus for administration of ether per rectum. There is as yet no one who keeps in stock either the Cunningham apparatus or any of the modifications of it, which we have come to use at Roosevelt. I have made all of our own apparatus and think perhaps you would find it both quicker and cheaper to do likewise. The Cunningham apparatus is extremely simple, consisting only of an ether cylinder, approximately 2 inches in diameter and from 9 inches to 16 inches, or even 18 inches, in height; a hand bulb connected with a tube passing through the cork of the ether flask and to the bottom of the ether; and another tube merely penetrating the stopper of the ether chamber and serving to connect the same with the rectal tube.

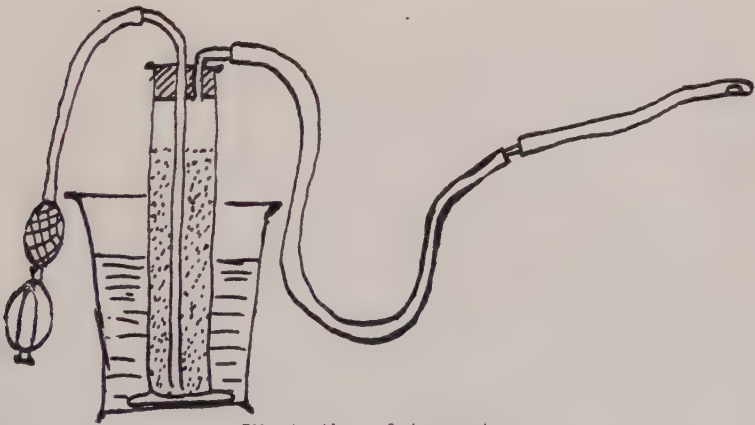


Illustration of Apparatus.

The ether was heated by immersion of the ether cylinder in a pail of warm water. When desirable to do so, the gases were allowed to escape from the gut by introducing the finger into the anus alongside the rectal tube and somewhat dilating the sphincter. To overcome this difficulty, Dr. Leggett, of the Surgical Research Department at P. & S., introduced a T-tube into the connection between ether cylinder and rectal tube, placing a clamp on the lateral branch. By releasing this, the pressure could be conveniently let off the bowel at any time.

In my own apparatus I have changed this T-tube to a modified Y-tube and placed it between the patient's thigh within 2 inches of the anus, shortening the rectal tube accordingly and connecting the afferent tube to the gut with the



Modified Y-tube.

upper arm, while the tube from the lower arm is led away into a bottle under the table. This arrangement permits the emptying of the gasses out of the gut and of fluid feces as well; which latter, in the earlier form of the apparatus, not infrequently plugged the afferent tube and greatly embarrassed the effort of the anesthetic. A mercury manometer has also been added, on the theory that the ill results of the form of anesthesia are due to the action of concentrated ether vapor on a mucous membrane rendered ischemic by pressure. Our working pressure is 20 m.m. Hg., and results, since the addition of this part of the apparatus, have fully justified the theoretical demand for its adoption. The rectal tube which we now use is about 8 inches long, has a bulb about $\frac{3}{4}$ -inch in diameter, $2\frac{1}{2}$ inches from the connected end, and has multiple (4 to 6) fenestræ.



Rectal tube with fenestræ.

The bulb serves to prevent the escape of gas around the tube and the multiple fenestræ prevent the complete blocking of the tube by prolapsed mucosa, etc., when the exhaust tube is opened. Also, we have found that in about 40 per cent. of our series of 120 cases, completely satisfactory anesthesia cannot be maintained by colonic absorption alone. There is a general tendency for the lungs, when open respiration is permitted, to excrete the ether nearly as fast as the colon is able to absorb it. For this reason we have made it a practice to cover the patient's face with three or four towels so that there is a certain degree of rebreathing of ether-laden air, which, of course, diminishes the rapidity of exhalation. As I have said, however, there are about 40 per cent. of cases which at some time or other in the course of the operation, need more ether than the colonic absorption is able to provide. This need may last only half a minute; as when the manipulations in a thyroidectomy stimulate a coughing reflex in a patient otherwise satisfactorily anesthetized, or it may be required at intervals throughout the anesthetic, as in cases of very alcoholic persons, or of patients with lax, and hence leaky, sphincters. To meet this need we have added a short tube branching off from the afferent tube to the gut, which on occasion is introduced under the towel covering the patient's face, and by means of which the air there confined is mixed to any desired degree with ether vapor. This apparatus is shown attached to the operating table in No. I of the photographs, which I am sending you under separate cover. This apparatus gives perfectly satisfactory results and can be very cheaply constructed.

On account of the bulk and instability of the ether cylinder, however, I have recently made up the form of vapor generator shown in photograph IV. This apparatus, which brackets on an ordinary oxygen tank, holds all but about

two drachms of its charge of ether in reserve and is heated by a 10 c. p. tubular incandescent electric lamp. It is so arranged that either air or oxygen may be used as a vehicle for carrying the ether vapor into the gut, or either may be passed into the gut without ether. Contact of air with ether for a sufficient time to accomplish saturation of the former with the latter is accomplished by passing the air through the spiral wire "W," which is just immersed in ether. The air or oxygen coming down the tube "a" enters the innermost turn of a sheet metal spiral, "W," which is soldered above to a round, flat metal plate, "h," and winding its way out travels slowly a distance of about 14 inches in direct contact with the warmed ether. The only objection to this apparatus is its expensiveness, which I estimate at about \$40.00.

An efficient and yet relatively inexpensive generator could be made by the use of the spiral wire in any wide-mouthed glass bottle, holding from 250 to 400 g. of ether and provided with a mercury manometer and the proper efferent connection, the heat being kept at the proper point by partial immersion in a pail of warmed water.

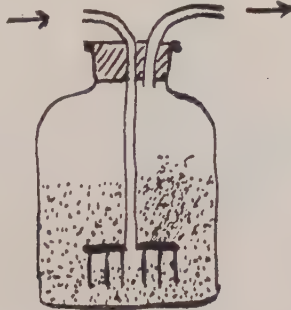


Illustration of generator.

Trusting your experience with the method may be as satisfactory as our own, I am,

Yours very sincerely,

WALTER S. SUTTON.

Roosevelt Hospital, N. Y. C., August 27, 1908.

DR. N. B. CARSON,

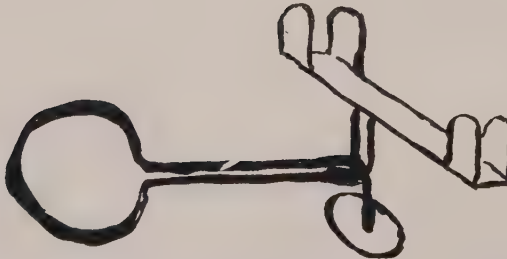
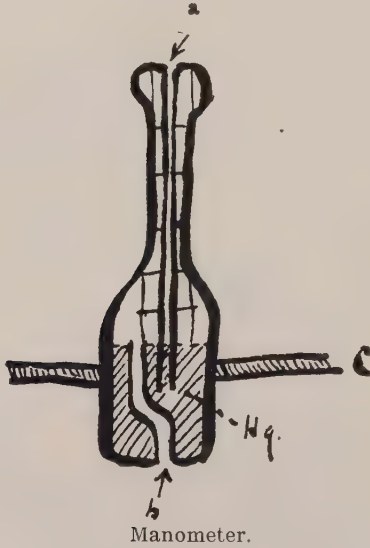
St. Louis, Mo.

My Dear Dr. Carson: As to the cost of the apparatus, I am afraid that a man who would charge \$30.00 for the simple apparatus would startle you, with his estimate on the latest form, as the latter is much more expensive to construct.

The manometer I have shown is one of my own device, which is simply set into the cover of the ether generating chamber. As the sectional sketch shows, it is made up of a glass tube with a much smaller tube (about 1 m.m. in diameter) sealed into each end. The upper tube "a" is the one into which the mercury is forced by the pressure which is admitted through the lower tube "b." The diameter of the outer tube is so much greater than that of the tube "a" that a 20 m.m. rise in the latter does not lower the level in the former to any appreciable degree, hence the reading in the small tube "a" gives practically the correct pressure and it is not necessary to read up in one limb and down in the other, adding the two for the true reading, as in the ordinary

U-tube manometer. I made my own from a glass irrigating tip, which is about the proper length (between 4 and 5 inches).

The combination clip can be easily made by any mechanic or tinker by taking off one of the finger discs from a good, strong spring clip and replacing it by a piece of flat metal with four lugs to hold the rubber tubing. (See sketch.)



The afferent tube is caught by the four lugs and held in such a position that the tube is compressed by any effort to open the clip. The efferent tube is pinched by the clip proper.

Very sincerely,

WALTER S. SUTTON.

Roosevelt Hospital, N. Y. C., July 17, 1908.

DIAGNOSIS AND TREATMENT OF ECTOPIC GESTATION.

By E. E. MONTGOMERY, M. D.,Professor of Gynecology in Jefferson Medical College, Philadelphia.

The occurrence in my service during the last five months of some six cases of ectopic gestation, exhibiting phenomena rendering the diagnosis obscure, impels me to group them together for consideration. Ectopic gestation—the development of the fecundated ovum in an anomalous position—most generally occurs in some part of the Fallopian tube, and the unsuitability of this canal to continue to harbor and nourish the developing embryo, and the manifestly dire results of the termination of the misplaced conception, render its early recognition of the greatest importance. In no class of cases does it behoove the physician to be more on the alert than in those now under consideration. The early symptoms are those of ordinary pregnancy; one or more menstrual periods missed, with the occurrence of the usual vasomotor disturbances of early pregnancy, as anorexia, morning nausea and vomiting, depression of spirits, lassitude and irritability of temper. In addition, the patient will complain of a sense of uneasiness, occasional attacks of colic-like pain on the affected side. Where these recur with increasing frequency and severity, they should awaken the suspicion of an abnormal situation of the developing ovum. Severe attacks of pain, with a sensation of faintness or actual fainting, are indicative of rupture of the gestation-sac. Such rupture or hemorrhage into or from the tube is generally associated with bleeding from the genital tract. Prolonged bleeding associated with repeated attacks of cramp-like pain in one side of the abdomen or in the pelvis, should cause rupture of an ectopic gestation-sac to be suspected, even though the periods have occurred regularly and the individual be unmarried. The following history is an excellent illustration:

3-1-09: A nurse, unmarried, aet. 34 years, was admitted to St. Joseph's Hospital, with the record of having been perfectly regular in her menstruation until January 18th preceding, when she had an attack of pelvic pain so severe that she could not move, which soon yielded to the application of an ice-bag and enabled her to resume her occupation. On January 26th, while riding in a trolley car, she was again seized, but much less severely than on the previous date. She was taken home but did not recover for four days, and the pain was on the left side of the abdomen and radiated to the umbilicus. Similar seizures occurred on February 4th and 11th. After the last attack she remained in bed until she entered the hospital. She had a dark, bloody, vaginal discharge, which began with the first attack of pain and increased in severity with each subsequent one. She exhibited marked rigidity of the muscles

on the right side of the abdomen and a palpable mass was readily distinguished in the region of the appendix. She was sent to the hospital with the supposition that the condition was due to inflammation of the appendix, but a blood examination which showed erythrocytes of 3,500,000, leucocytes 7,000, and the absence of temperature variations, negatived the view of an inflammatory condition. After having been under observation a week without any recurrence, she was subjected to operation for a mass which could be recognized in the right tube.

The exposure of the peritoneum made it evident that free blood was in the cavity as it presented a dusky hue. Nearly a quart of clotted blood was found in the belly and the right tube contained a mass the size of a duck's egg, which contained the fetus enveloped in a firm clot. The right tube and ovary and the appendix were removed. The latter, aside from being long and tortuous, showed nothing abnormal. While this patient had an ectopic gestation, there was no indication of rupture; rather it was a threatened abortion, both the intra-abdominal and the vaginal hemorrhage having originated in the tube and taking place through its abdominal and uterine ends. The diagnosis was rendered difficult by the thickness and rigidity of the abdominal walls, and the absence of any cessation of the menstrual flow. The experienced gynecologist will see many cases in which his diagnosis must be largely derived from the subjective symptoms, as in the following instance:

A married woman, *act.* 33 years, was admitted to my service at the Jefferson, who had given birth to five children, and four weeks before admission, without previous disturbance of menstruation, began to have pain in the left side of the abdomen, increased by walking and attended by a vaginal discharge of blood. No headache or febrile symptoms were at any time manifest. Upon admission, the patient appeared well nourished and in a healthy condition, except that there was an area of tenderness on palpation, extending from the crest of the ilium to the umbilicus and downward to the pubes. There was no palpable mass, but a slight lessening of the normal tympany. The posterior vaginal cul-de-sac slightly bulged and gave a sensation of moderate but ill-defined resistance. Intraperitoneal hemorrhage from ruptured ectopic gestation was suspected, and on November 18th, as a preliminary to abdominal incision and as an object lesson to a section of students, a puncture of the posterior vaginal fornix was made, through which there was at once a gush of dark, fluid blood, confirming the suspicion of intra-abdominal hemorrhage. Through an abdominal incision, the left tube and ovary, the former presenting a ruptured gestation-sac, were raised and removed. A considerable quantity of clotted and fluid blood was evacuated. I would emphasize the value of vaginal puncture as a certain and safe procedure for diagnosis in suspected cases. It not only affords certainty but assures a safe means of exploring the tubes prior to rupture, for the ordinary bimanual manipulation may provoke the rupture of such a sac and result in hemorrhage so severe as to threaten

life before the patient can be subjected to operation. Formerly, much stress was placed on the history of previous inflammation and subsequent existence of sterility. It has sometimes seemed to me that the efforts employed to prevent conception may sometimes react on the patient, producing changes in the functions of the tubes which favor the arrest of the fecundated ovum in its progress to the uterus. The severe abdominal pain in the region of the uterus and the discharge of blood and clots from the vagina of a supposed pregnant woman generally leads to the diagnosis of threatened or completed abortion, when the later progress will reveal that an intra-abdominal rupture and hemorrhage has been the cause of the disorder. This error can not be better illustrated than in the following case brought to my service March 7th, 1909, at the Jefferson Hospital:

A woman, aet. 28 years, married seven years and mother of one child aet. 5 years. She had menstruated last on December 10th, 1908, and had a supposed miscarriage on the 13th of February, when she had uterine bleeding and passed a number of large clots, and had severe cutting pain in the lower abdomen. The following day her physician curetted her, removing some decidual membrane, and packed the uterus. She developed a slight fever but was about until March 5th, when she had an attack of nausea and vomiting, pain in the epigastric and umbilical regions, which seemed to radiate from the right iliac fossa where there was marked tenderness. She fainted twice on the 6th. She was brought to the Hospital by the ambulance and referred to my service from the Accident Room. She was slender, under-sized, weak and languid. Her mucous membranes were pale and skin covered with cold perspiration. Her sallow skin presented a yellowish tint. Superficial fat was scanty and the muscles flabby, the thorax was long and narrow, the supra- and infrascapular fossae deep, the ribs prominent and expansion good. The lungs were normally clear and resonant, the breasts small and flabby and showed no enlargement of the papillæ. The abdomen was symmetrical, with slight rigidity of the lower half of either rectus and marked tenderness over the right iliac fossa. Percussion disclosed dulness over either flank and tympany on each side when the patient was turned on the other. The cervix was low in the vagina, softened and pointed toward the coccyx. The uterus was large and could be palpated above the symphysis. Through the right fornix a large, tender, fluctuating mass could be perceived and the posterior fornix was depressed. Blood examination disclosed hemoglobin, 59 per cent., color index, 1; erythrocytes, 2,570,000; leucocytes, 14,800.

Operation, 3-11-09: Median incision in linea alba. Abdomen filled with blood, uterus fixed by adhesions. An oblong gestation-sac, situated in the right tube, was removed, leaving a portion of the tube and all of the ovary. A good portion of the blood and clots were removed by irrigation with salt solution and the wound closed. The diagnosis in this case was slightly obscured by the increased leucocytosis. Although the

greatly decreased number of erythrocytes would suggest the possibility of hemorrhage, occasionally the ectopic gestation will mark the first pregnancy and this, too, in women in whom there is no history of previous sexual disorder.

A woman, aet. 29, was admitted to the Jefferson February 2, 1909, who, with the exception of a malarial attack three years ago, had always enjoyed good health. Puberty was established in the thirteenth year; the period was painless and profuse, lasting four or five days, and occurring every twenty-eight days. The last period had occurred December 25th, 1908. She had been married eight years without becoming pregnant. A week prior to admission, she was seized with severe pain in the left lower quadrant of the abdomen, moderate prostration, nausea and vomiting. The symptoms entirely disappeared in a few hours and recurred more severely two days subsequently. A third attack occurred on the day of admission. A physician was called, who found her weak and prostrated. Vaginal examination seemed to disclose a tender mass in the left fornix, but as she fainted during the investigation, an ambulance was called to bring her to the hospital. Upon admission, she was apparently highly nervous, poorly nourished and under-sized. As she could speak no English and no interpreter was present, the history to be obtained was meagre. The lower portion of the abdomen was prominent, the hypogastrium and the left iliac fossa were tender, with some muscular resistance. An examination of the blood six days later revealed, hemoglobin, 68 per cent.; erythrocytes, 3,750,000, leucocytes, 7,400; color index, 9+. Operation the following day disclosed free blood and clots within the abdomen which had arisen from rupture of a gestation-sac in the left tube. The left tube and ovary were removed. The anemia, fainting, and the blood examination, despite the meagreness of the general history, were indicative of probable rupture of an ectopic gestation-sac.

The influence of pelvic inflammation in the etiology of ectopic gestation has long been recognized, and is particularly exemplified in the following history of a patient, whom I have twice had the privilege of operating upon for Dr. O. H. Hoffman, of Thomas, W. Va. In 1902, she gave birth to a child after an apparently normal labor and convalescence and eighteen days later developed an infection. Shortly thereafter, she underwent an abdominal operation in which the left ovary was removed and the right anchored, to support it from prolapse into the pelvis. She first came under my observation in 1906, when she complained of severe pains in the left side, which lasted over night and occasionally for forty-eight hours, and occurred every two to three weeks and during which she vomited freely. She was generally constipated. On August 30th, 1906, at the Jefferson Hospital, she underwent a curettement and had the abdomen opened through the old scar. The appendix was removed, the right ovary, which was large, was resected

and the right round ligament shortened to maintain the uterus in a forward position.

November 19th, 1908, she came under my observation at St. Joseph's Hospital, stating that after having missed four periods, she was some six weeks previously seized with severe, cutting, abdominal pain, associated with intense shock and cold sweats, from which she was revived in twenty-four hours. A week later another attack, but less severe, occurred, when she was curetted, after which the pain ceased. She had subsequently more or less abdominal uneasiness, a continuous leucorrhœa but no bloody discharge; was very white, giving the appearance of having lost blood.

November 20th, 1908, the day following her admission, I opened the abdomen by a median incision, evacuated a large quantity of fluid blood and clots and removed a gestation-sac, consisting of the right tube with ovary attached. From the sac hung a three months fetus.

The cases given illustrate the difficulty in determining the diagnosis under ordinary conditions, and demonstrate how easily ectopic gestation, even at the point of rupture, when it occurs in the right tube, may be mistaken for appendicitis. Torsion of the pedicle of a small, broad ligament cyst on either side of the pelvis can readily lead to confusion. How much more readily, then, may difficulties confront the investigator when the patient has had previous attacks of pyosalpinx, inflammatory changes which have caused the intestines to form bands of adhesions, or been subjected to operations which have been followed by extensive adhesions or by hernia.

The next case is one pregnant with such possibilities that I consider it especially important that it should be recounted. A woman, æt. 39, was admitted to Jefferson Hospital February 1, 1909, who had undergone an operation for the removal of her appendix eleven years ago, which was followed by a fecal fistula. Thirteen months later she was subjected to operation for closure of the latter, but it proved ineffectual and was afterward overcome by cauterization. Four years ago she had intestinal obstruction, but her condition was regarded as too precarious to justify operation for strangulated hernia, so she recovered without it. She has been married five years and is reported to have had four miscarriages, all at six to seven weeks' duration, and one sixteen days ago. She menstruated regularly December 3, 1908, and subsequently, from subjective symptoms, believed herself pregnant. On January 16th, 1909, she had sharp, lancinating pain in the right lower quadrant of the abdomen, attending with profuse sanguineous discharge from the vagina. There were no clots. The pain was paroxysmal and exaggerated at night, and excruciating during micturition. The bowels were regular and there was neither vomiting nor nausea. Four days prior to admission she had a particularly severe attack which lasted ten hours, after which the pain disappeared until her entrance.

Examination: She was a heavy-set, well developed woman, who occasionally tosses in bed and moans with pain; pulse 72, respiration 28, temperature 99°. Abdomen large and muscles flabby. To the right of the median line there is an area 10 inches long and some 3 inches in breadth, a quite prominent bulging, a ventral or incisional hernia, in which the movements of the intestines could be observed, covered only by skin and peritoneum. Tenderness was marked over the right side of the abdomen, and adhesion of the intestine to the covering of the hernia was distinctly recognizable at the upper portion. Vaginal examination showed the walls of the vagina relaxed, the cervix soft, slightly enlarged and in the axis of the vagina, the right fornix slightly lower and quite tender. With the hand over the abdomen a large mass was palpable through it and a smaller one to the left. The uterus seemed enlarged out of proportion to the supposed period of gestation but, on account of the marked tenderness, the fundus could not be accurately made out.

Operation, 2-2-09: After thorough cleansing of the vagina and the surface of the abdomen, an incision ten inches long was made throughout the length of the old scar in the right lower quadrant, through the skin and fascia. On opening the peritoneum in the lower portion, the cavity was found to contain free blood and a large number of small clots. An artery in the right broad ligament had been opened and was still bleeding. This was the site of a ruptured ectopic gestation-sac, which when spread out was about two and a half inches in diameter. The pedicle was clamped and the mass removed, after which the structures were ligated. The uterus was large but in normal situation. The left tube and ovary were also large. There was a small fibroid on the left of the uterus low down. The intestines and omentum were in a mass of firm, quite vascular adhesions at the site of the old wound, and the small bowel was so intricately adherent to the abdominal parietes that it had to be separated with scissors. In breaking up the adhesions, the bowel was torn in four places, two small and two large rents. The abdominal cavity was protected as far as possible from fecal matter and the latter mopped away. The cavity was flushed with warm, saline solution. The omentum was broken away from the intestines at numerous places and the redundant omentum was ligated and excised. All bleeding points were ligated; the weakened portion of the small and also large intestine excised and united by Collins suture. The abdominal wound was closed with continuous catgut sutures, the first through the peritoneum; then silkwormgut sutures through all the tissues above the peritoneum and the other beneath the surface of the skin. The ends of these sutures were tied on either side over pledgets of iodoform gauze. Before they were tied, however, the aponeurosis was united with the same continuous catgut suture which was knotted at the upper angle of the wound. After tying the silkwormgut sutures, the skin was united by continuous catgut suture. The patient did fairly well for a few days, when the abdomen became distended and later there was a dis-

charge of fecal matter through the wound. This necessitated the re-opening of the wound, and as the amount of fecal matter was increasing, on the 10th of February all the sutures were removed, the cavity thoroughly washed out, the weakened portion of the intestine resected and again sutured, this time with black celluloid thread. As there was considerable sloughing of the abdominal wall, the intestines were packed with iodoform gauze and the wound treated as an open one. The patient was profoundly shocked after the operation but reacted under continuous proctoclysis with normal salt solution. She died on the 12th.

I have reported here a series of six cases, in each of which there was some variation from what might be considered as the normal or ordinary physiognomy of ectopic gestation. Five of the patients recovered and the fatal one died from conditions independent of the pregnancy. As the operation was not promptly done in any of these cases, it might be considered as an argument in favor of procrastination, but in none of these cases was the hemorrhage sufficient to, at any time of itself, endanger life. While I favor the selection of the time for operation in cases where it can be done without prejudice to the patient, I would not wish to be understood as advocating delay in all cases, as numbers of patients have succumbed to hemorrhage from the rupture of an ectopic gestation-sac in a very short period of time. It requires considerable courage to proceed to operation upon a patient who is apparently gasping for breath, and who is so exsanguinated that the pulse cannot be felt. Without operation, in such patients the only hope is in a clot forming in the vessel which will prevent further bleeding. Its preservation consequently precludes the employment of measures to rally the patient from the shock, as any measure which will increase the blood pressure endangers the driving out of the clot and the continuation of the hemorrhage. Such patients require very little anesthetic, and it is well to begin the procedure by having an assistant open a vein and commence transfusion of salt solution while the preparations are being made for the operation. In this way the operation is completed and the patient has the restoration of her force by filling up the bloodvessels. Very little time should be spent in the toilet of the peritoneum and in drying out the cavity, from the fact that it is unnecessary to remove all the blood. The first consideration is to secure the bleeding vessel. As soon as the abdomen is opened, a glass nozzle connected with an irrigating apparatus can be carried into the abdomen and normal salt solution flow into it during the time that the bleeding vessel is being secured; then see that the larger clots are washed out and allow the belly to retain the salt solution and fluid blood. This, absorbed, increases the amount of fluid in the vessels and gives the heart something to act upon.

When the patient comes under observation, after she has begun to recover from the shock and it is evident that the hemorrhage is arrested, the operator can take his time for the operation. Even in such

cases, it is unwise to delay any great length of time, for the reason that this condition occurs in patients in whom there has been, in the majority of cases, previous inflammatory trouble. There is consequently an opportunity for the effused blood to become infected from the tubes, and in those cases in which the intestines are more or less fixed by adhesions, the delayed peristalsis favors the retention of material within the intestines and the possible transudation through the intestinal wall of microorganisms to the enveloping collection of fluid, so that, in either of these ways, dangerous infection may result. It is true that some of these cases would recover good health without operative interference, but the possibilities of infection we have already mentioned make operation the most effective door of relief, as it removes the collection and saves the forces of the patient the necessity of taking care of it.

SOME POINTS OF INTEREST IN TUBERCULOSIS OF THE
LARYNX.

By CHARLES GRAEF, M. D., of New York.

Instructor in Throat Department, New York Post-Graduate Medical School and
Hospital.

There is probably no pathological condition in any part of the body which presents a more diversified picture than may be seen in a series of cases of tuberculosis of the larynx. Diagnosis is not made especially difficult by this fact, but treatment and prognosis are necessarily modified and many of the "suspiciously long lists" of curative agents which one may find named as successful by various writers on the subject, owe their reputation to the same fact.

In this short contribution I purpose limiting myself to those phases of the disease which are most likely to come under the observation of the practitioner and shall, therefore, limit myself to the consideration of some points in diagnosis, treatment, and prognosis.

Tuberculosis of the larynx is seldom, if ever, a primary matter. Some pulmonary lesion is commonly in evidence when the throat trouble is noted, and in such event diagnosis is comparatively easy. In other cases, however, the first signs of tubercular invasion present *here*, and these instances are sufficiently numerous to make early recognition a matter of much consequence.

Aside from a suggestive family history, perhaps no single early sign is of such importance as loss of voice. A patient who becomes husky at frequent intervals, with perhaps imperfect restoration of tone between the attacks, should be regarded as a likely subject and kept under careful observation. Miliary tubercle is the form in which the disease presents in the larynx, and frequently large numbers of small seed-like tubercles can be seen through the mucous membrane. As they increase in number, cell proliferation proceeds to the point of death from blocked nutrition, and softening, with spreading ulceration, ensues. Pallor of the mucous membranes is accordingly another very suggestive early sign. The grayish-yellow color of these tissues is very striking, and once observed is likely to be recognized in future cases. This pallor is seen not only in the lower throat but in the pharynx, and especially on the soft palate. In syphilis, malignant disease, and lupus, with which active tuberculosis of the larynx is most likely to be confounded, the membranes are injected and hyperemic.

Pain is rarely complained of until the disease is well advanced. In the early stages a dry, burning feeling in the throat is more often spoken of

by the patient, and this may be accompanied by an irritable, tickling cough, particularly troublesome at night when the patient is recumbent, or cause him periods of wakeful discomfort towards morning. The affection is more common in men than in women, and most of the cases occur between the ages of twenty and thirty-five years. To the early signs, in insidious cases, which I have mentioned, must be added the loss of appetite and energy, so familiar in many tuberculous cases, and nowadays, the result of one or more of the tuberculin tests must also be given due weight. Later, as the disease advances and ulceration is progressing, the pain and cough become severe from erosion of the nerve elements, or pressure from tubercle formation and swelling. Loss of function is also more marked and voice defects, depending on the location and extent of the changes in the larynx, vary from a degree of huskiness to complete aphonia. The lesions are most common on the back parts of the larynx, thickening of the arytenoids, which assume a characteristic "club-shape," being perhaps oftenest seen as the first sign. Ulceration of the epiglottis is also common and destruction of this part of the larynx has been, in my experience, a strong indication that the case would prove one of poor resistance and rapid progress to the end. Cases in which the cords are chiefly involved, especially if this is unilateral, the cord being affected on the side corresponding to the lung in which an area of disease is located, are more likely to respond to treatment. Examination of the sputum is not of much help except in the way of determining, by thus finding the bacillus, that disease is present in the lung. In laryngeal tuberculosis the bacilli are rarely located in the sputum. A brief résumé of the chief points by which tuberculosis of the larynx is characterized, and through which it may, in most instances, be distinguished from other diseases, is as follows:

The mucous membranes are pale. Health is generally impaired for some time before attention is drawn to the throat and in most cases there is previous or coincident pulmonary trouble. Its early appearance is most often on or between the arytenoids where the occurrence of small spots of induration is rapidly followed by marked edema. Ulcers are not deep but spread widely and are accompanied by pain in speaking, coughing and swallowing. Stenosis of the larynx is seldom seen and treatment with iodides is either without effect or, by increasing the edema, may aggravate the symptoms.

Prognosis: This has become distinctly better of recent years as the understanding and management of tuberculosis in general has improved. Only a few years ago a prominent writer on the subject felt justified in saying: "As a rule the prognosis can be given only on the basis of the weeks or months of life yet before the patient. The prognosis is most unfavorable." Such a dictum cannot be accepted to-day. Well-known workers in this field report that they have raised their percentage of cures from two to *twenty*, by modern methods. These consist chiefly in general hygienic measures, fresh air, nourishment, etc., and, locally,

the clearing away of the diseased tissue by curettage, followed by local applications, of which the best is probably lactic acid, or by galvanocautery and subsequent healing applications. Recently some considerable success has been reported by those who have used tuberculin in suitable dosage, and I have personally had some promising progress in a few cases in which I have added a spray of the culture of lactic acid-producing bacilli, to the local treatment of tuberculosis of the larynx. It is, of course, too early to do more than mention it as a possibly useful material in this connection.

A difficulty in treatment of these cases is that the patient can, himself, do little toward effective medication of the part. Sprays and gargles practically have no more useful function than that of cleansing the pharynx, though with practice a patient may learn to reach the laryngeal disease with a good atomizer. He can aid the cure much by giving the larynx complete rest, and this is a point that should be strongly urged.

Pain is sometimes difficult to control, no single drug being effective in all cases. The juice of the ordinary pineapple is sometimes helpful and can be safely recommended for use by the patient. Of drugs, probably orthoform, either as insufflation or in ten grain doses in emulsion, is as effective as any if not quite the best. Cocaine, in 5 to 10 per cent. strength, sprayed into the larynx, gives ease but requires repeating at frequent intervals. Later in the disease, where treatment becomes largely palliative, morphine must be used. For the burning feeling already spoken of, a gargle or spray of equal parts of peroxid of hydrogen, extract hydrastis (colorless), and cinnamon or chloroform water, is very soothing. If dryness is a marked feature, an oil spray, of which benzoinol is a good example, should be prescribed.

1076 Boston Road, New York.

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CIRCUMSCRIBED SEROUS SPINAL MENINGITIS.

By M. A. BLISS, M. D., of St. Louis, Mo.

In the number for February 27, 1909, page 513 of the *British Medical Journal*, Victor Horsley writes a description of chronic spinal meningitis, and reports having performed laminectomy on a relatively large number of cases. His practice is to irrigate the subdural space with 1-1000 bichloride solution.

He mentioned the case of Spiller, Musser and Martin, published in 1903, and recently reviewed by Spiller in the *American Journal of Medical Sciences* for January, 1909, and a communication in April, 1907, from Prof. Krause, who described hydrops and meningitis serosa spinalis in 6 out of 22 cases referred to him as probably tumor. Horsley also mentions descriptions by Schlesinger and by Oppenheim.

Horsley says it is evident how closely these cases resemble tumor of the spinal cord, and he proceeds to describe a case convalescing at the time of lecture, which had shown a wide distribution of pain, with cramps in the leg and toes of the right side, the right toe springing up involuntarily with the pain. The pain had begun in the groin. For two years there had been tightness and numbness of both thighs, and slight dribbling of urine. Walking was chiefly limited by pain and stiffness and the tendency to involuntary contractions in the muscles of the lower limbs, especially the right. The patient had relative anesthesia of the entire right limb and the right hypochondriac region, as well as relative analgesia. There was no trophic lesion of the skin. On operating, a marked degree of chronic meningitis was found and it illustrated the fact that a unilaterality may be a feature which confuses the diagnostician.

Horsley discusses the circulation of the cerebrospinal fluid from the place of its manufacture in the ventricles of the brain downward, and suggests that it finds its way, under normal conditions, out along the lymphatics along the course of the nerve roots.

In the cases under discussion a large accumulation of cerebrospinal fluid is found around the cord, distending the dura, which does not pulsate when exposed. When the dura is slit the fluid spurts out and collapse takes place and the normal movements from cardiac and respiratory influences are established.

Horsley suggests both syphilis and gonorrhea as possible causes, but does not firmly establish either. He recommends washing out the subdural space with 1-1000 bichloride solution and leaving the dura unsutured.

The author has recently reported a case which falls under the heading of chronic spinal meningitis of Horsley. Spiller gives the condition the

name of circumscribed serous meningitis, and Prof. Krause, meningitis serosa spinalis. My own case was reported in the *Journal American Medical Association*, March 13, 1909, p. 885, under the heading of "Cysts Within the Spinal Canal."

Upon reading Horsley's paper, above mentioned, a somewhat wider view of the subject leads me to the conviction that these cases cannot perhaps be correctly designated as cysts, but rather as accumulations, more or less confined, of cerebrospinal fluid, which bring pressure to bear upon the cord and produce the symptoms of a more or less complete transverse lesion.

The really important point to be kept in mind is not so much that they may be more or less unilateral and resemble tumor, but that they are, according to present dominating text-book teaching, usually described as transverse myelitis and condemned to a life of paralysis and invalidism after futile medical treatment has been applied.

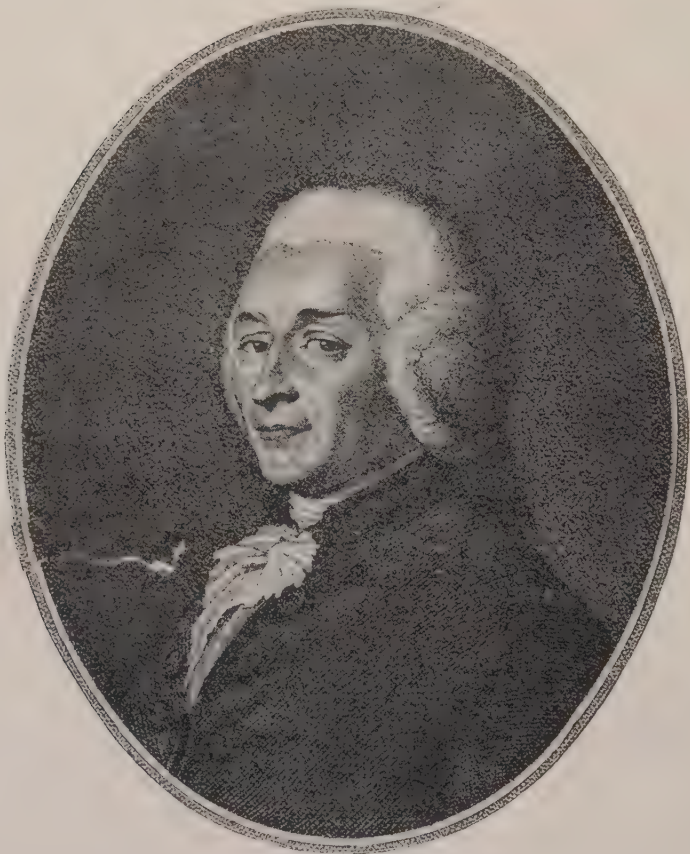
It would seem, from recent developments, that a very considerable number of cases of this character have gone on to death wrongly diagnosed, have even been wrongly interpreted at post-mortem, for the end results of the process may be like the end results of poliomyelitis—give little hint of conditions at the time of activity of the disease.

The happy results of operative interference in the cases described by Spiller, Horsley and others, and in my own case, and, on the other hand, the utter hopelessness of medical treatment, stirs one to look alertly for such conditions and to urge the surgical treatment of them.

While Horsley mentions lues and gonorrhea as most likely causes, my own case gives a very clear history of traumatic causation. The ordinary infections may play a role. Grip has been mentioned by Wood.

Whatever may be ultimately determined as to the most frequent causative factors, it is well to remember that the symptoms may come on insidiously and slowly. A history of intercostal neuralgia, of mild or severe type, is not unusual if the seat of greatest compression is in the dorsal region; if in the lumbar region, lumbago, anterior crural or other nerve group neuralgias, may occur primarily, to be followed later by a rather even anesthesia and analgesia, associated with cramping of muscles and increased deep reflexes, and by bladder and rectal signs. An upper limit of the lesion can usually be determined.

Humboldt Building.



J.I. GUILLOTIN

*Député à l'Assemblée Constituante.
Né à Saintes le 29 Mars 1738.*

Paris chez l'Auteur, rue du Théâtre Français N°. 4.

1740

GUILLOTIN.*

By FRANK J. LUTZ, M. D., of St. Louis.

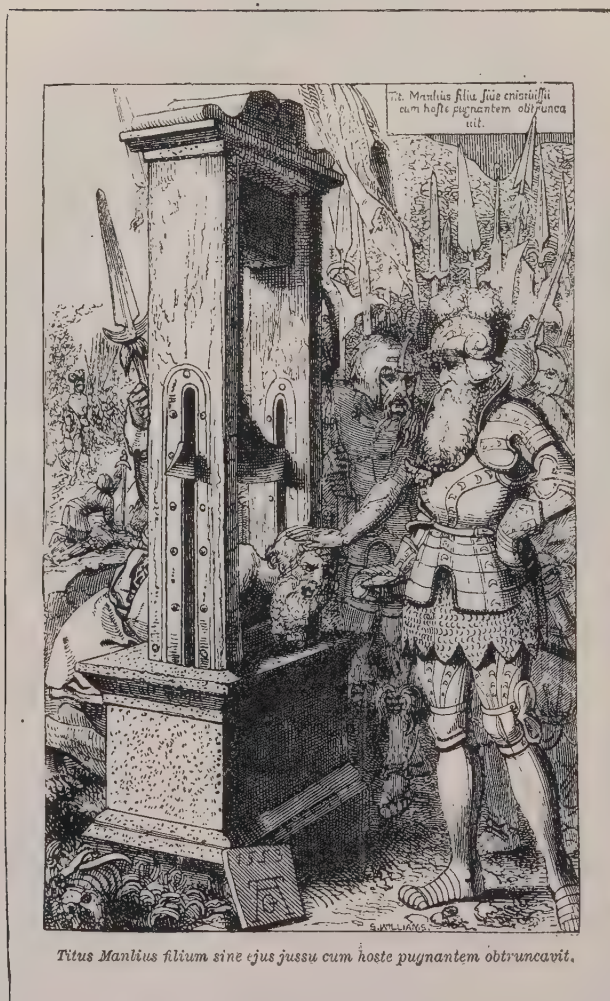
At the present time the attention of medical men is being repeatedly directed to the responsibilities of citizenship. The importance and necessity of discharging their public duties is more seriously considered each day, and the old spirit which prided itself on its ignorance of and indifference to matters political is fast giving way to conspicuous participation, on the part of physicians, in all the concerns of social life. The supercilious expression of contempt for those who in the past discharged their civic obligations is being steadily supplanted by manifestations of approval and admiration. The so-called "politician" has become the exemplar for and the leader of his profession.

During this time of great activity in considering public questions and the aroused medical conscience, it will not be amiss, I trust, to ask your attention this evening for the narration of the political activity, as representative of the medical profession, of the man whose name is unfortunately linked with the bloody emblem of the "Terror" of the French Revolution with a persistence unequalled in history.

The numerous biographers of Josef Ignace Guillotin have spared no pains to show that he was not, and could not have been, the inventor of the guillotine—a method of decapitation in vogue long before he was ever thought of, and in use during the Middle Ages in Italy, Germany, England and Scotland as well as in Paris; and even long before among the Romans.¹ It has also been stated that without the assistance of Guillotin, Dr. Antoine Louis and Schmidt, a German mechanic residing in Paris, erected the first machine on the Place de Grève, in April, 1792, after Guillotin's political career had been ended. It is well known that the instrument was called the "Louissette," after the permanent secretary of the Academy of Surgery of Paris, and also "Mirabelle," after Mirabeau, the orator of the French Revolution. In spite of these well-known and oft-reiterated facts, this same historic error has been and is being repeated abroad, as well as with us, almost daily. In the *Bulletin of the Johns Hopkins Hospital* for July, 1906, Dr. J. Chalmers Da Costa, in his readable sketch of Baron Larry, repeats it. Peper, in the *Journal of the American Medical Association*, January 4th, 1908, is guilty of the same mistake; even the great historian, Professor Pagel, of Berlin, an honorary member of the St. Louis Medical History Club, calls him the inventor of the guillotine and detracts additionally from

*A sketch read at a meeting of the St. Louis Medical History Club held under the auspices of the St. Louis Medical Society.

¹See illustration of instrument, page 342.



Copy of Henry Aldegrever's copperplate engraving which bears the date of 1553 and represents the death of the son of Titus Manlius, by an instrument in principle identical with the guillotine, though somewhat more decorated.

his reputation by telling us, in common with Saucerotte, that "he has written nothing."

But perhaps we should not wonder at this when we recall what another of his great countrymen, Victor Hugo, says: "There are unfortunate men: Columbus could not attach his name to his discovery and Guillotin could not detach his from his invention."

The origin of the word guillotine, newly coined as associated with the decapitating machine, is traceable to the doggerel of a royalist newspaper which was devoted to satirizing those then in power in the "Journal des Actes des Apôtres." The following lines are said to have been written by a member of the French Academy; they were sung after a well-known minuet melody, and appeared in its tenth number when the question of capital punishment was under consideration in the General Assembly:

"Guillotin,
Médecin,
Politique,
Imagine un beau matin
Que pendre est inhumain
Et peu patriotique.
Aussitôt
Il lui faut
Un supplice
Qui sans corde ni poteau
Supprime le bourreau
D'office.

C'est en vain que l'on publie
Que c'est pure jalousie
D'un suppôt
Du tripot
D'Hippocrate
Qui d'occire impunément
Même exclusivement
Se flatte.

Le Romain
Guillotin
Qui s'apprêtre
Consulte gens du métier,
Barnave et Chapelier,
Même le Coupe-tête;
Et sa main
Fait soudain
La machine
Qui simplement nous tuera
Et que l'on nommera
GUILLOTINE."

Guillotin,
 Physician,
 Politician,
 Imagines, one fine morning,
 That hanging is inhumane
 And hardly patriotic;
 Immediately
 He devises
 A mode of punishment
 Which, without cord or stake,
 Suppresses the office
 Of public hangman.

In vain it is published
 That it is pure jealousy
 Of a disciple
 Of Hippocrates
 Of the "Tennis-court,"¹
 Who flatters himself
 [That he can] murder with impunity
 And exclusively.

The patriotic
 Guillotin,
 Who is ready,
 Consults men of his kind—
 Barnave and Chapelier,
 And even Coupe-tête,²
 And his hand
 Makes of a sudden
 The machine,
 Which will "simply" kill us,
 And which shall be named
 GUILLOTINE!

¹The oath of the Tennis-court is a celebrated episode in the French Revolution. On June 20, 1789, the King, egged on by the Princes and the Bishops, issued an order to close the hall in which the National Assembly had convened for three days, the excuse being that the King needed the hall for a royalist meeting. This really meant his disapproval of the Third Estate. When the members met they were greeted by the King's guards who refused to allow them to enter, and upon their remonstrating, were told to read the order nailed to the door. Their indignation increased when they were refused admittance to a smaller hall in the same building. On the suggestion of Guillotin they took possession of a hall in a near-by street, which was known as the Tennis-court. Here the members took the celebrated oath which was drawn up by Barnave and Chapelier, and which really marked the first decided revolutionary step of the National Assembly.

²Coupe-tête was one Jourdain (afterwards more widely known for his share in the massacres of Avignon), who derived his title of Coupe-tête from having cut off the heads of two guardsmen, Des Huttes and Varicourt, who were murdered in the palace of Versailles on the 6th of October. The very patrons of massacre, Barnave, Chapelier and Coupe-tête, were themselves all massacred by the Guillotine.

Guillotin's activity as a member of the National Assembly has been thoroughly presented, more particularly by Chereau. It will serve our present purposes sufficiently to recite briefly such biographic data as will enable us to draw a correct picture of this high-minded and manly character, this penetrating and highly educated physician and clear-sighted, conservative statesman.

Josef Ignace Guillotin was born on the 29th of May, 1738, in Saintes (Département Charente—Inférieure) as the son of a lawyer. He attended school at Bordeaux; his talents and the creditable thesis which he presented and defended for the degree of Master-in-Arts attracted the attention of the then still powerful Jesuits to him, who gave him a professorship in their Irish College at Bordeaux. It appears that shortly before the order of the Jesuits was suppressed in France, he resigned his position and went to Paris to study medicine, where he was inscribed as a student in 1763, and attached himself more particularly to Antoine Petit. In 1768 he quitted Paris, obtaining his doctor's hat at Rheims, presumably on account of the large expense attached to securing the degree in Paris which, according to Liard, amounted to eight thousand francs or about sixteen hundred dollars of our currency. He immediately returned to Paris and competed for the position of "ward of the faculty," for which an endowment had been made by a former member of the Paris faculty and which, after a competitive examination, was awarded annually to a competent and needy student of medicine. He secured the coveted prize and thereby was admitted free to all the degrees which the faculty had at its disposal.

The following are some of the theses which he had printed about this time:

"An vesiculæ fellæ per ductum cysticum bilis mittatur?"

"An carbonum vapor in clausis cameris sedulo vitandus?"

"An ossa prope articulum fracta post colli *γενεσις* leni motu exercenda?"

"An pregnantibus, parturientibus et puerperis, nulla, aut saltem nisi lenientia remedia?"

On the 26th of October, 1770, Poissonier conferred the degree of Doctor of Medicine upon him, which gave him the right to practice his profession in Paris. It must be remembered that the medical faculty of Paris signified much more then than it does to-day. The entire guild of physicians possessing diplomas formed the faculty and from these graduated physicians the teaching corps of the medical faculty was selected. The number of those possessing diplomas was very small in proportion to the population, and in 1768 their number was only one hundred and forty-eight.

Those members of the medical faculty who were obligated to deliver regular lectures were called "docteurs-regents." They presided at the disputations and festivities and enjoyed various privileges and sources

of revenue, and might be compared with the ordinary professors of a German University.

Guillotin soon reached this regence, then the highest medical distinction, and enjoyed great popularity as a teacher. The important position which he held in the medical profession, and the influence which he exerted is shown by his selection by Louis XVI. as a member of the commission to which was entrusted the investigation and the furnishing of an opinion concerning a new method of healing, then violently agitating the people and the medical profession of Paris—animal magnetism—the wonderful cures of which had not only astonished and excited the populace but had penetrated the very circles of the Royal Court.

Mesmer had come to Paris in 1738, and the reputation of his universal remedy brought him a large *clientèle* and much gold. In his richly decorated salons, with mirrors extending from ceiling to floor, was erected, as upon an altar, the magnetizing *baquet*—a wooden tub containing all kinds of worthless things. The patients stood around this in a circle and touched each other as well as iron rods which extended from the *baquet* and which transmitted the “magnetic fluid.” Dim colored lamps, benumbing odors and soft musical tones perplexed the senses and excited the imagination. Cures which were effected and which *we* explain as the effects of suggestion, increased the reputation of the master infinitely.

Deslon, a distinguished member of the Paris faculty, and physician in ordinary to the Duke D’Artois, became associated with Mesmer, and according to his own statement, educated one hundred and sixty physicians, among them twenty-one members of the Paris faculty, in this new method of treatment, whilst Mesmer himself had more than three hundred pupils.

Deslon boldly proclaimed: “There is but one nature, one disease, one remedy and that remedy is animal magnetism.”

The great sensation which these doings created, and the many improprieties which occurred, induced Louis XVI. to demand, in 1784, a scientific opinion concerning this method of treatment. The Paris faculty elected four members, among them Guillotin, for the commission; and at its request, five members of the Academy of Sciences were associated with them: Lavoissier, the founder of modern chemistry, our own Benjamin Franklin, then at the French Court, and Bailly.

Mesmer objected to all commissions, but Deslon was more accommodating. The commission held its sessions, made its investigations and performed its experiments in a strictly scientific manner from March until August, 1784.

It would lead too far to give the details of the methods, thoroughly scientific, by which the commission reached its conclusions: which were, essentially, that animal magnetic fluid does not exist and that the means used to produce the nervous condition of those treated, are dangerous.

This "rapport des commissaires," was printed by order of the King and was distributed in thousands of copies. It has been translated into English and can be found in the Surgeon General's Library. It is remarkable for the clearness and elegance of its language and for the scientific presentation of the facts; and even after the lapse of a century and a quarter, is still worth reading.

Of course it is to the credit of Guillotin that his name is attached to this report, and although we do not know just what part he took in the work leading to the report, it is claimed for him that he suggested many of the tests and contributed much to the success of the investigation.

This report terminated the activity of Mesmer in Paris, which he left toward the end of 1784. Deslon attempted unsuccessfully to refute the report of the commission by a counter report, but did not succeed in preventing the Paris faculty from demanding, after the appearance of the report, that the adepts of Deslon should pledge themselves in writing to discontinue these magnetic methods of treatment; and seventeen of the twenty-one members so pledged themselves.

More serious matters, however, attracted the attention of the French. Louis XVI. had at last yielded to the long continued pressure of the *Parlements* and had convoked for the year 1789 the States-General, which had not met since 1614; and at the same time, he requested all learned and enlightened men to give expression to their views concerning the composition, as well as the scope, of the States-General. This opportunity was embraced most extensively. The liberal ideas which, owing to the writings of the encyclopaedists, of Rousseau, Voltaire, Montesquieu, and the influence of English and American experience, had become the common property of the educated people, found full and forcible expression on all sides. Guillotin, who heretofore had never taken any interest in politics, expressed his views in a pamphlet which suddenly made him the hero of the day, because, as Chassin has said (in the "collection des documents relatifs a l'histoire de Paris"), "it presented the views concerning the Third Estate with remarkable clearness and exemplary moderation."

This "petition des citoyens domiciliés à Paris," more quoted than known is, according to the same author, a political and literary work in all respects truly remarkable. It bears the date, December 8, 1788. The official representatives of the Parisian citizens, the "six corps de marchands" (those who sell the more choice merchandise) namely: the cloth merchants, the spice dealers, the mercers, the furriers, the jewelers and the wine merchants—at once made this pamphlet their own, distributed it in thousands of copies and placed it with the notaries for the collection of signatures. This resolution was adopted on the 10th of December, and thus Guillotin's pamphlet became the petition of the six corps.

In point of time, as well as in importance, it is among the first confessions of faith or, if you will, it is among the first political platforms which prepared for the Revolution. It demands by arguments based upon reason, upon law and upon historic tradition, in the name of the Third Estate, the correction of abuses, and demands also for the Third Estate at least as many representatives in the States-General as are accorded the nobility and the clergy. At the same time the language is respectful and the pamphlet is written from the view point of a monarchist. For proof listen to these closing sentences:

"Frenchmen, we who are separated into states but united by the same love of our country, present to Europe, the eyes of which are turned upon us at this time, the great and fascinating spectacle of the mightiest nation which stands united with its august leader, the greatest of monarchs, to work in unison with him upon the renaissance of the state. Let us present to this benevolent monarch a spectacle worthy of his heart—that of a great family which is united under the eye of the best of fathers."

On the 19th of December the Parliament of Paris, the supreme court, from the decisions of which there was no appeal, further increased the importance and effect of Guillotin's pamphlet by confiscating it; but it did not follow up the confiscation with punishment of the author. In Chassin's collection of documents, above referred to, the protocols of the transactions of the *Parlement* are printed for the first time and they show how, on the very eve of the Revolution, the pamphlet of Guillotin and its suppression gave rise to a discussion of the important question whether the liberty of the press, which had been guaranteed, implied also the right to petition and to meet.

The *Parlement* summoned Guillotin; he was subjected to examination; he declared that patriotism and consideration for the public weal, and not private interests, had prompted him to issue the pamphlet, and that he would gladly have allowed its author to remain anonymous. He said that he was prompted to present in simple, moderate and readily understood language his convictions, because most of the pamphlets which had hitherto appeared transgressed the boundaries of moderation and good sense, and that the six corps had adopted his pamphlet without knowing the author. The decision of the *Parlement* did not affect the contents of the petition, but declared that it was improper and beneath the dignity of the Notaries to have it exposed for signature in their offices. At the same time the *Parlement* despatched its president to Versailles and urged upon the King to hasten the convocation of the States-General. During the proceedings an immense concourse of people filled the halls of the Parliamentary Palace, circulated the petition, and signed it. When Guillotin left the building he was greeted with great demonstrations of applause, crowned with flowers and conducted triumphantly to his home. The petition appeared again in January, 1789, with the result of the deliberations of the Royal Council of the 27th

of December, 1788, according to which the Third Estate was given a number of deputies equal to those of the two other States combined, and with an address of thanks from the six corps, who were justified in claiming that this conclusion was the first fruit of their petition.

In the ensuing election, it goes without saying that Guillotin was elected as one of the representatives of the Third Estate, and when on the 5th of May, 1789, the convention was opened at Versailles, he sat as the tenth deputy for the good City of Paris.

After the convention of the States had been converted into the General Assembly, Guillotin became one of its most industrious and faithful members, and when the end of the General Assembly was reached, in 1791, it also terminated his political activity.

Concerning Guillotin's position in the General Assembly we might mention that his urbanity, his easy and polished manners, made him the choice of his colleagues as Inspector de la Salle; and on the first of February he was elected to the Presidency of the General Assembly—a position in which he acquitted himself with great satisfaction until the grave question of the Royal Veto was raised, which resulted in such a tumult that it became necessary for him to break up the session.

The unenviable notoriety which attaches his name to the guillotine has already been referred to, and we might mention here only that as an active participant and philanthropic deputy, Guillotin insisted that all punishments should be meted out regardless of the social rank of the criminal.

On the 10th of October he had proposed ten articles which established the principle that the privileged classes should not have capital punishment inflicted upon them by decapitation or by being quartered, hanged and tortured; and that decapitation should be the capital punishment for all by a simple mechanism—short, sure, and as painless as possible. His proposition also demanded that the heirs of the condemned should not be deprived of his property, nor suffer the degrading consequences of conviction then in vogue. On the first of December he defended these propositions in a lengthy speech, which was received with great applause, and which some of his biographers extol very highly, although upon what grounds does not appear, for neither in the official protocols nor in the newspapers of the day or in the National Archives can it be found.

Guillotin's greatest importance as a public man must perhaps be sought in the fact that with his liberal and yet moderate views he represented the purest type of the French medical man of his day, and of that elite of citizenship, whose stand in public matters has forced even so unfavorable a critic of the Revolution as Taine, to endorse it in words of highest praise.

Seventeen physicians were members of the National Assembly, where for the first time the medical profession came in contact with general politics in France. The Legislative Assembly of 1791 numbered twenty-two physicians among its members; the convention of 1792,

thirty-nine,—among them Marat, whose conduct is in marked contrast with that of his colleagues.

During the Terror, 104 physicians were executed; 328 physicians and 504 surgeons were expatriated.

However active the medical profession was in the affairs of the Revolution, and however honorably its members acquitted themselves, the scientific attainments of the French physicians at the beginning of the Revolution were of an inferior order. The teaching of the faculties was insufficient, and numerous abuses had crept into affairs in the course of time. The great cost of acquiring the degree in Paris has already been mentioned and it is, therefore, easily explained why six or seven promotions were the annual limit. It is true that in 1789 the faculty comprised 148 docteur-regents, but many of them did not live in Paris, and only seven were teachers, representing the chairs of physiology, pathology, pharmacy, materia medica; obstetrics, Latin and French surgery.

There were only 60 medical students in Paris. Montpellier, the most frequented of the French universities, had 100 students of medicine. Practical teaching had been entirely neglected. Every now and then a work of Hippocrates was read, but no dissections were made. In Paris only two cadavers were needed during the year for the course in operative surgery; and even in Montpellier dissecting consisted of demonstrations on the part of the teacher. Above all, there was no clinical instruction. The teaching body bore no relationship to the hospital, and obstetrics in its practical aspects was entirely neglected. Strassburg furnished a praiseworthy exception in practical instruction. On the whole it may be said that the physician left the medical school without practical knowledge; and as Diderot sarcastically remarked, "the physicians acquired the necessary skill only after murdering their patients in great masses."

Surgery had some excellent teachers and good courses, but in this department also the number of students was small and the surgeons in the country were considered incompetent and mediocre. This condition of affairs was especially felt in the country, and the encyclopaedists, and especially Vicq d'Azyr, lost no opportunity to criticize the faculties; and in all the *cahiers*,—the petitions which presented the complaints and wishes of the electors,—were urgent requests for reform in this direction. The declaration of the nobility of Montreuil-Sur-Mer expresses the prevalent opinion "that the ignorance of the country surgeons costs the state more citizens annually than it could lose in ten battles."

On the 12th of September, 1790, the National Assembly had, on motion of Guillotin, appointed a committee on public health. The following year, in 1791, Guillotin made a report in the name of his committee in which he proposed a plan of reform for medical education which would correct the existing abuses and which could easily have been carried out. According to this plan, large schools of medicine were to have been established in Paris, Montpellier, Bordeaux and Strassburg, each in con-

nection with a hospital in order that internal medicine, surgery and obstetrics might be learned at the bedside. Twelve professorships were to be established for medical physics and hygiene, anatomy and physiology, theoretical and practical pharmacy, botany and materia medica, theoretical medicine, history of medicine and forensic medicine, as also for the practical instruction in internal medicine, which was to have been given partly at the bedside, partly in an adjoining lecture room before and after the visits of the students to the wards. Similar provision was made for instruction in external diseases and obstetrics. French was to be the exclusive language in teaching and in the examinations. Lectures were to be free. The professors were to obtain their position by competitive examinations, etc. Finally Guillotin became the champion of the union of surgery with medicine and proposed, instead of all academic honors and titles, the simple appellation of "physician" for all licensed medical persons.

Although this plan, which was pronounced most excellent, seemed to meet the requirements of the time, it was not adopted but made part of the general plan of instructions submitted by Talleyrand and shared its fate.

The National Assembly was in the last days of its existence and seemed unwilling, or unable, to cope with far-reaching schemes involving the expenditure of large sums of money. Guillotin's report was printed under the title, "A Plan for the Teaching and Practice of the Art of Medicine." The radical Revolutionists, who in the National Assembly were in control, abolished in 1792 twenty-two universities, faculties and medical schools and thereby created perfect anarchy, which was relieved only after many complaints concerning the entire absence of physicians and the frightful news that within eighteen months the army had lost about six hundred physicians, and then in 1794 three *écoles des santé* were established in Paris, Montpellier and Strassburg. It was not until 1803 that, under the influence of Fourcroy, the French educational system was changed, whereby it became more efficient, and this remained in vogue until 1891.

After the adjournment of the National Assembly, Guillotin retired to private life. He remained a patriot of 1789, and was outspoken in his disapproval of the Revolutionary excesses which followed, and often repeated, in the circle of his friends, the words of Rousseau—that even the most just Revolution must be abhorred if it cost a single drop of human blood. He denounced in the most sarcastic terms the men of the Terror, more particularly Robespierre, and he protected, whenever he could, the victims of the Revolution. He gave them a refuge in his home, and often, although mostly unsuccessful, attempted to influence his colleague Marat in the interest of mutual friends. An emigrant, Count Mère, had been condemned to death and, before his execution, had recommended his wife and children to Guillotin. His letter fell into the hands of the authorities, who demanded of Guillotin information concerning their whereabouts, which he neither would nor could give. He

was arrested and the fall of Robespierre on the 9th Thermidor saved him from death. This arrest and incarceration may have given rise to the fable that Guillotin fell a victim of his own machine. It is said of him that even during the very height of the "Sansculottism" he firmly adhered to the powdered wig and three cornered hat; and Saucerotte relates that *his* father bought the busts of Henri IV. and Sully which, during the most dangerous period of the Revolution, ornamented the rooms of Guillotin.

After the fearful disappointments of his political life his indestructible faith in the progress of mankind sought its gratification in science. He collected the members of the old faculty into a scientific society, the *Académie de Médecine*, for which he obtained a meeting place from the authorities, as is seen from a letter of thanks which Guillotin wrote in 1811 to the President of the Consistory in which he says: "The *Académie* is composed of everything that is left of the former Paris faculty and a number of doctors of other French faculties; it is our intention to jointly labor for the greatest public good in the progress of medicine and in the upholding of the dignity of an honorable vocation, which has been reduced to so low a state by anarchy."

Guillotin was also an enthusiastic advocate of Jenner's great discovery. He was elected chairman of a newly created French committee for the propagation of this method of protection in France and in this capacity he asked, in 1805, in a splendid oration, the blessing of the Pope, who then resided at Fontainebleau, for this new philanthropic endeavor. It was printed by order of the Minister of the Interior.

He died on the 26th of March, 1814, in his 76th year, of an anthrax of the left shoulder. He married on the 15th of July, 1787, Marie Louise Saugrain, of the very respectable family of Parisian librarians, booksellers and printers. It is of unusual local interest that her brother was a practitioner of medicine in St. Louis.

Guillotin has not changed and enriched the medical or ancillary sciences as did his contemporaries Lavoisier, Pinel, Bichat or Corvisart, but he, nevertheless, rendered valuable services in his investigation of Mesmerism, and by diffusing knowledge in France concerning vaccination. By his example and political efficiency, as well as by his endeavors to promote reforms in the interest of medical education, he was a fine illustration of the true physician, a self-sacrificing politician, a patriot and a humanitarian. His spotless character as a man should make us proud to number him among us.

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MEDICAL AND SURGICAL PROGRESS.

SURGERY OF THE LARGE BOWEL.

A REVIEW OF RECENT LITERATURE.

By M. B. CLOPTON, M. D.

1. IDIOPATHIC DILATATION OF THE COLON.—Finney (*Surg. Gyn. & Obst.*, Vol. VI., p. 624).
2. HIRSCHSPRUNG'S DISEASE.—J. Petrivalsky (*Langenbeck's Archiv.*, Bd. LXXXVI., Hft. 2).
3. HIRSCHSPRUNG'S DISEASE.—Wagner (*Surg. Gyn. & Obst.*, Vol. VI., No. 6).
4. THE PHYSIOLOGIC IMPORTANCE OF THE DIFFERENT SEGMENTS OF THE LARGE BOWEL WITH REFERENCE TO ANTIPERISTALSIS.—Roith (*Mitt. a. d. Grenzg. d. Med. u. Chir.*, Bd. XIX., Hft. 1).
5. ACQUIRED DIVERTICULITIS OF THE LARGE INTESTINE.—W. J. Mayo (*Surg. Gyn. & Obst.*, Vol. V., p. 8).
6. ACQUIRED DIVERTICULA OF THE SIGMOID.—Telling (*Lancet*, March 21 and 28, 1908).
7. ACUTE DIVERTICULITIS OF THE SIGMOID.—Brewer (*Journ. A. M. A.*, August 15, 1908).

Although recognized for many years, Hirschsprung's idiopathic dilatation of the colon has received much the most attention from authors in the past few years, particularly because the treatment has become largely surgical. The clinical picture is usually clear and pronounced, the cardinal symptoms being obstinate constipation and a distended abdomen in a patient in otherwise fairly good health. The disease is usually of early life, even immediately after birth, and continues throughout life. Bowel action rarely comes except after cathartics or enemata, and the intervals between stools may be from a few days up to months. Occasionally, diarrhœa may alternate with this constipation. The distention of the abdomen may be enormous, which is more marked by the contrast to the emaciated body. The colon can sometimes be outlined through the belly wall, and peristalsis is frequently plainly followed, and borborygmi are often loud. The fecal discharges vary, at times dry and inspissated, at other times putty-like, with a peculiar, offensive odor. It is a disease rarely rapidly fatal, but the patient leads a precarious existence owing to malnutrition and digestive disturbances incident to the trouble. The medical treatment is such as used for chronic constipation. The surgical treatment varies much. The operation of choice is resection of the affected portion of the colon with a subsequent entero-anastomosis, which has been successful in 14 out of the 22 cases in which it has been performed. Colostomy has been done 23 times and as a preliminary to radical operation is valuable. Coloplication in a number of cases has not given satisfactory results. Colopexy has been fairly satisfactory, but

is occasionally a failure. Entero-anastomosis without resection does not prevent a continued collection of feces in the distended loop, but in most cases it has given good results.

Finney reviews the whole subject, particularly noting in detail the various theories advanced to explain the condition such as (1) distension accompanying an abnormally long mesentery, which allows torsion of the sigmoid (in only a comparatively few cases has this found to hold); (2), as a congenital development both as to the dilatation and the hypertrophy (Hirschsprung); (3) as due to a colitis, which becomes chronic, and distension follows abundant gas production (colitis described by most observers is a late manifestation); (4) as due to an increased length of the colon with an exaggeration of its loops (this may explain some of the cases in adult life or in the insane with marked coprostasis); (5) as due to a mechanical obstruction (many cases have failed to show this); (6) as congenital aplasia of muscular tunics above the rectum, with gas and feces not getting by, later an hypertrophy of the colon with much fibrous tissue forming, due to toxic irritation; (7) as spastic contraction of sphincter with fissures (rarely seen); (8) as a neuromuscular defect in one segment of the colon with paralysis, similar to phantom tumors; (9) as due to valve formation of the intestine. Finney reports a case of a 9 year old child operated upon, with cure, by first doing a colostomy above the dilatation, which begins at the hepatic flexure, then, later, the child being much improved and the colon much smaller, making an anastomosis of the ascending colon and the lower sigmoid, leaving the excision of the whole dilated colon until some months afterward. The colostomy is left open as a safety valve until the series of procedures are well over, and then closed. In this case he believed the dilatation congenital. He also reports on eleven cases that have been treated in the Johns Hopkins Hospital. The whole subject is exhaustively treated, covers 206 reported cases and is accompanied by a complete bibliography.

Petrivsky had an opportunity of making an autopsy on a case of true megacolon and came to the conclusion that the whole intestinal canal is involved, and not only the colon, both being much shorter than usual, and the mesentery was histogenetically weak and lacking in elasticity, the dilation and hypertrophy of the bowel walls being consequent. In a case of symptomatic megacolon, due to an abnormally long sigmoid, which became twisted, he did not find this microscopic change.

Wagner reports a congenital case in a child 2 years old, with an enormous belly and suffering from constipation. There was marked colonic peristalsis, and in operating for excision of the whole colon he found that the sigmoid was U shaped and very large, terminating abruptly in a normal rectum, at which point there was a kinking. The child died of embolism at the end of 32 hours, but the intestinal condition was good.

Ito and Soyesima have seen two cases, which have been relieved by surgery. The first was a 14 year old boy, who from birth had suffered with incontinence of feces, particularly when in bed. In every way he presented a typical picture of the disease. The first operation was a lateral anastomosis between the lower part of the ileum and the upper part of the rectum, which improved the condition, but did not prevent a stasis of the feces in the distended, side-tracked colon. Two months later a second operation was done, excising the colon leaving about 20 c.m. of the lower end of the large bowel. The cure was complete. The second case was considered a pseudo-megacolon, and occurred in a child 4 months old, who since birth had alternated between complete obstruction with distention, and free movements. At operation a long,

twisted sigmoid was found with an enormously dilated colon. An artificial anus, which later closed spontaneously, cured the condition.

By clinical observation and experimentation on animals Roith comes to the conclusion that the larger gut in part has a reverse peristalsis, which is found in the cecum, ascending colon and the first part of the transverse colon. The distal part of the transverse and the descending colon have no antiperistalsis, but there is a slight reverse in the sigmoid. This accounts for the fact that the contents remain longer in the ascending colon and sigmoid than in the last part of the transverse and descending colon. On account of this reverse peristalsis of the ascending colon it is better, in operating, to excise the cecum to make the anastomosis of the ileum to the transverse colon beyond its middle. A colostomy had best be made at the junction of the descending colon, and the sigmoid, while a permanent fistula should be made in the neighborhood of the left flexure.

In the descending colon and sigmoid between the splenic flexure and rectum, acquired diverticulæ are now recognized as occasionally calling for surgical interference. The cases group themselves into (1) those in which an intraperitoneal abscess forms, with spontaneous evacuation into a neighboring viscus, or evacuation externally through operation; (2) those cases giving rise to acute or chronic obstruction, when at operation the inflammatory changes give a picture impossible, many times, to distinguish from carcinoma; (3) those in which the symptoms are mild and recovery occurs spontaneously. The condition is found usually in constipation where hardened feces become impacted in a diverticulum, which occurs in people beyond 50 years with a tendency to obesity where there is a weakened musculature. The treatment according to Mayo, depends on the condition present. Local suppuration must be treated by free drainage. If acute obstruction develops a temporary anus should be made. If a considerable tumor is present it is best to make a primary resection of the affected bowel. Three cases of internal fistulæ with the bladder are reported, two cases with abscess or external fistula, and five instances where a well-marked tumor appeared in the left side, three of them suddenly, with inflammatory symptoms, and in all five of the cases the colon was resected, and in each the gross appearance was that of carcinoma, but subsequent examination showed no malignant disease was present. A number of cases in elderly, obese people, were symptomatically diverticulitis but after a thorough cleaning of the bowel the symptoms subsided.

In an extensive article Telling reviews the subject especially in relation to the secondary pathological processes and their clinical symptoms. He believes that no one factor can bring about the condition, but notes constipation as extremely common, together with venous congestion, and the added factor of muscular weakness, allowing the process to start about the points of entrance of the vessels through the gut. The secondary processes of the acquired diverticula, are liable to include infection of the general peritoneal cavity through thinning of the walls of the diverticula or perforation, a chronic proliferating inflammation with thickening of the gut wall and stenosis of the bowel. Adhesions may form especially to the small bowel and the bladder. Vesico-sigmoid fistula is due to acquired diverticula and is a condition of some frequency; it is met surgically by a palliative preliminary operation like colostomy, or by undertaking a radical operation in the first instance.

Brewer believes that the course of the disease is so similar to appendicitis that the treatment should be the same, closing off the stump of the diverticulum if possible, and if pus is present draining the wound.

THE OPHTHALMO-REACTION FOR TUBERCULOSIS FROM THE STANDPOINT OF THE OPHTHALMOLOGIST.

A REVIEW OF RECENT LITERATURE.

BY JOHN GREEN, JR., M. D.

1. CALMETTE'S OPHTHALMO-REACTION FOR TUBERCULOSIS—Weber (*Med. Press*, August, 1908).
2. THE STATUS OF THE OPHTHALMO-REACTION TO TUBERCULIN—Appleman (*Therap. Gaz.*, September, 1908).
3. THE CONJUNCTIVAL TUBERCULIN TEST—Mannheimer (*N. Y. Med. Jour.*, September 5, 1908).
4. ON THE SYMPTOMS AND THE COMPLICATIONS OF THE "OPHTHALMO-REACTION TO TUBERCULIN"—Aubineau (*Ann. d' Oculist*, July, 1908).
5. OCULAR LESIONS PRODUCED BY THE OPHTHALMO-REACTION—Adam (*La Clin. Ophthalm.*, June 25, 1908).
6. THE OPHTHALMO-TUBERCULIN TEST: TWO SEVERE REACTIONS—McKee (*Montreal Medical Jour.*, October, 1908).
7. EVIL CONSEQUENCES OF CALMETTE'S REACTION AND THEIR PREVENTION—Seligmann (*Zeitschr. f. Augen-h.* XX. 1908, p. 130).
8. THE DANGERS OF CALMETTE'S OPHTHALMO-REACTION—Butler (*Brit. Med. Jour.*, August 8, 1908).
9. ON THE VALUE OF THE OPHTHALMO-REACTION IN THE DIAGNOSIS OF TUBERCULOSIS—Gillie (*The Australian Med. Gazette*, May, 1908).

Weber concludes that the ophthalmalmo-reaction in its present stage is of only limited diagnostic value and may cause serious damage to the eye. A first instillation may be negative and a decided reaction follow a second instillation a week or ten days later. This may occur in perfectly healthy subjects.

The ophthalmalmo-reaction may be of value to determine whether a tuberculin preparation, introduced by the mouth or rectum, has been absorbed into the general circulation. In the latter case the conjunctiva, on which the ophthalmalmo-reaction has been tried a week or two previously, will become reddened just as it would were tuberculin to be injected underneath the skin.

The difficulty in securing uniform results is, according to Appleman, in part due to the failure as yet to obtain a tuberculin which may be considered of standard, uniform strength, and until this is done there must be more or less variability in the conclusions of various observers.

Contraindications to the use of the method are enumerated by Mannheimer as follows: "Any existing disease of the eyes, except errors of refraction or any tendency thereto; or traces of previous disease; scrofulous children; hay fever; ordinary colds; perhaps also the administration of iodids." He concludes that the conjunctival test has fulfilled rea-

sonable expectations, though it exhibits discrepancies as yet unexplainable. It requires caution in its application and interpretation. It should be used judiciously so as not to bring it into discredit.

Aubineau believes that the complications of the ophthalmo-reaction are rare and generally slight when there are no recent or old lesions of the eye. These complications are relatively frequent when the eye presents lesions, either recent or old; and that the method should be absolutely rejected for eyes that present either tuberculous manifestations, or affections such as ulcero-vascular keratitis and the phlyctenular diseases of infancy, which may be more or less directly connected with tuberculosis.

Among the more serious complications are involvement of the uveal tract, lesions of the bulbar conjunctiva similar to pustular ophthalmia or to the proliferations at the limbus of vernal conjunctivitis or to patches of episcleritis, a prolonged folliculitis or vegetations on the tarsal conjunctiva and ulcerations of the cornea followed by opacities.

Adam has noted the appearance of small hemorrhages following tuberculin instillations in healthy eyes. In scrofulous infants phlyctenulæ may occur. The occasional occurrence of keratitis is alluded to.

Out of a series of 200 tests McKee met with only 2 where severe reactions were seen: One, a case of membranous conjunctivitis, the other a muco-purulent conjunctivitis followed by phlyctenular keratitis. Both made good, though tedious, recoveries. He concludes that the results of the test are, as yet, contradictory.

Seligmann records a peculiar sequel hitherto undescribed. A girl, aged 20, presented, seven days after the instillation of a 0.5 per cent. solution, a purulent conjunctivitis palpebraris and three large marginal phlyctenules. Here and at the semilunar fold, a large number of small, light, or opaque yellowish, partly prominent, nodules were imbedded. A month later the phlyctenules had disappeared, but the whole periphery of the cornea was dotted with miliary nodules to which blood vessels radiated from all sides. The whole ocular conjunctiva was covered with miliary yellowish nodules, and under the epithelium of the cornea white punctiform infiltrations were noticeable. The suppuration was not toxic, as the pus was almost free from microbes.

Microscopically these miliary nodules consisted of subconjunctival, circumscribed, round-cell infiltrations with necrosis and giant cells, but no tubercle bacilli. Inoculation of a guinea pig was negative, hence Seligmann concludes that the nodules were produced by the dead bodies of bacilli, or their endotoxins. Water irrigations were used to remove mechanically the remnants of tuberculin. In addition, 1 per cent and 2 per cent solutions of glycerine, which, according to Koch, is the best means of extracing tubercle bacilli, were instilled. This relieved the symptoms rapidly, and Seligmann recommends it not only as a therapeutic, but also as a prophylactic, in all tuberculin instillations, immediately after the reaction sets in, to avoid future serious complications.

Three disastrous experiences with this method have led Butler to abandon his previously expressed opinion that "if the eye used for the test was healthy, there was no danger to be feared from a 0.5 to 1.0 per cent solution of tuberculin."

In the first case reported a typical tuberculous process was set up in a perfectly healthy eye, resulting in the formation of a central corneal nebula; in the second, a violent reaction was followed by a chronic conjunctivitis and a persistent phlyctenule; in the third, a violent muco-

purulent conjunctivitis occurred which resisted all treatment for two months.

A number of novel points have been brought out by Gillies. His deductions were drawn from 129 tests made in 103 individuals. Of the primary instillations, 53 cases gave a positive and 50 a negative result. The second instillation made before the eighth day after negative primary instillation, gave no reaction in eight cases; while three out of four cases gave positive results when the instillation was made on the ninth day after primary instillation. The same was true also in cases where the secondary instillation was made later than the ninth day.

From these cases it appears that it is perfectly safe to repeat the test where any doubt exists, provided it be done within seven days of the first test. A positive result on repeating the instillation after nine days invariably occurs whether the patient be tuberculous or not.

These results are explained on the assumption that a condition of anaphylaxis is produced by the first instillation. The latent period—nine days—agrees with the latent period found in experimental production of anaphylaxis in animals. How long this condition of anaphylaxis lasts cannot at present be stated, but certainly as long as a month.

From a practical point of view this fact is of the greatest importance. It is absolutely necessary when this test is applied that the patient be clearly informed as to what has been done, otherwise repetition of the test in ignorance of the previous instillation must lead to serious mistakes in diagnosis.

Another point of practical importance is that disappearance of the reaction in a case of arrested tuberculosis means that not only has the tuberculous process ceased, but that sufficient time has elapsed for the tissues to lose the anaphylactic condition conferred by the disease when active.

In a number of cases the subcutaneous injection of tuberculin as a confirmatory test evoked a recrudescence of the ophthalmo-reaction, often of considerable severity. It seems probable that injection should be performed within eight days to avoid an anaphylactic reaction.

The authors reach the following tentative conclusions:

1. A positive ophthalmo-reaction where a 1 per cent. solution of Calmette's tuberculin is used, in the absence of secondary syphilis and possibly convalescent enteric fever, is diagnostic of the presence of an active or recently quiescent tuberculous focus somewhere in the body.

2. A negative reaction does not definitely exclude tuberculosis, but is strongly against its presence, the margin of error being about 13 per cent.

3. The ophthalmo-reaction is as reliable as the ordinary tuberculin reaction, is readily carried out, involves little discomfort and no loss of working time to the patient.

4. The reaction is of no value unless it is certain that the eye has not been previously tested.

5. Where the original reaction has been negative it may be repeated within eight days and a positive result accepted.

6. Where doubt exists as to the correctness of the reaction, confirmatory injection, if done, should be performed within eight days where the reaction has been negative, and five days where positive.

A NEW CONTRIBUTION TO THE THEORY OF DISPLACED EMBRYONIC CELLS CAUSING THE GROWTH OF TUMORS.

A REVIEW OF RECENT LITERATURE.

By CARL FISCH, M. D.

THE GROWTH OF EMBRYONIC SUPRARENALS IN THE ADULT KIDNEY.—Hugo Neuhaeuser (*Deutsch. med. Woch.*, 1909, No. 8).

The reviewing of a single paper in this department may be excused because of the great importance of the contribution in the problem of the origin of tumors, especially of carcinoma. The paper by Neuhaeuser confirms, it must be admitted, in only a single instance, the origin of a malignant tumor formation from fetal tissue in the adult animal. Of all opinions on the genesis of tumors, none so far has been accessible to experimental evidence. Cohnheim's suggestion that the origin of most tumors is traceable to the changed location of fetal tissues, or cells, is the only theory that, if proven to be correct, even by a single observation, would suggest the probability that perhaps all other tumors, particularly those of a malignant character, must be interpreted in the same way. Indirectly the absolute specificity of the character of carcinoma has been definitely shown by Bormann in skin carcinomata, where the location, in the first place, in 90 per cent. of all cases, is found in areas which anatomically and embryologically, almost compel the displacement and separation of epithelial cells from their physiologic arrangement. The examination of these areas in fetal and adult stages shows in many cases the presence of epithelial complexes without connection with the surface epithelium; in fact, if the examinations were extended to every single individual, we would be able to demonstrate this condition in every one of them. Bormann has shown, with uncontradictable certainty, that 90 per cent. of skin carcinomata arise only in such areas. Of course, the finding of such displacements in normal individuals on one hand and on the other hand the appearance of carcinoma in the same location in nearly all cases, is theoretically not conclusive. What does make it more binding is the fact that in no case can it be proven that a cancer has arisen through changes of normal epithelia. Bormann has demonstrated that in the naso-labial fold, typical carcinomata can be found, representing in the section only about forty cells, that, of course, must be, as it is called, very early, or better are the commencement of growth of tumors. Especially in these microscopic tumors the absolute histologic difference from the neighboring epithelium is so definite that its origin or transition from normal epithelium is absolutely excluded. The same obtains for all other carcinomata of older age; if properly studied, it will always be seen that the tumor only grows by proliferation of its own cells; that it never forces surrounding tissue to become a tumor, a transition of normal tissue into tumor tissue cannot be demonstrated, in spite of the positive assertions of Hauser. The cells producing a tumor must be different from the normal and physiologically coordinated cells. That this mor-

phologic, physiologic and so-called biologic coördination of all tissues or their cells to each other is the basis for their character in the normal tissue, is shown in no better way than by the growth of the epithelium of the skin, where the physiologic loss of tissue is always replaced by a physiologic and adequate new formation, always within the limits of normal processes. Remove a fragment of this epithelium, transplant it to a denuded area of the skin, and its capacity for growth will be far greater than it was in its original location. It will not only cover the denuded surface but actually cover an area a hundred times larger than its original size. If from this transplanted growth successive transplantations are made, the transplant being used from one to the other, the chain of new formations is endless and will result in a long series of consecutive transplantations to a mass of newly formed epithelial tissue, in volume exceeding enormously that which primarily led to the proliferation. On the other hand, this proliferation stops in the first transplantation as soon as the surrounding normal epithelial tissue comes in contact with it, thus establishing the action of the physiologic, perhaps simply physical, relation of the regulating influence of the cells of a tissue on each other. This regulating influence cannot be exerted in cells displaced from their normal connections. They either find conditions in their abnormal surroundings not suited to their specific needs, or find sufficient means to persist as displaced complexes.

While, of course, the concatenation of the established fact of misplacement of fetal tissue in locations where, with predilection, tumors later arise of the type of the misplaced cells, with the origin of the tumors themselves, has been, so far, only a *post hoc propter hoc* conclusion, the numerous attempts that have been made in this direction have been uniformly unsuccessful. It has in some experiments been possible to produce, by the implantation of fetal tissue, formations of the character of teratomata. None of them, however, has exhibited the characteristic of tumors, an independent, continuous growth at the expense of the organism of the host. They soon met the fate of atrophy and elimination. That tumors can arise by transplantation of tissue in other locations, is a well-known fact, proved by the experiments of Schmieden with transplantation of suprarenal tissue into the kidneys. The result was the growth of hypernephromata, such as occur so often in human pathology, first interpreted by Grawitz. The interpretation of their being congenital in genesis cannot be contradicted by the methods of to-day of making conclusions from scientific work.

This extensive preliminary discussion is necessary to emphasize the importance of the result of the experiment made by Neuhaeuser. His investigations began with suprarenals taken from fetuses of rabbits in a very early stage. In twenty cases of transplantation the result was negative. The minute transplanted organs, of the size of the head of a pin, into the kidneys of adult rabbits, could not be seen with the naked eye, after five weeks; certainly they had not increased in size. Later he used the same organs from fetuses near the end of pregnancy. Each of the two suprarenals of a fetus was implanted into each kidney of an adult rabbit. While in one of them no distinct growth could be found, the other showed a very surprising condition. The shape of the kidney was not changed, but on section the lower two-thirds appeared normal while the upper third was changed, more or less, into a tumor-like mass. The implantation was made five months before the examination. Seemingly the tumor is sharply defined macroscopically, but microscopically it is surrounded by an area of degenerated and inflamed kidney tissue,

that is present also between the multiple nodules of the tumor of which it is composed. These nodules on section protrude above the surface and have a yellowish color. They are separated by septa. The capsule of the kidney covering the tumor is intact. The nodules of the tumor are numerous and one of the smaller ones represents about the size of the implanted suprarenal tissue.

The microscopic study shows the character of the cells of these masses to be identical with those of the normal tissue. A difference consists in the deeper staining capacity of the cytoplasm and in some greater density of it, than in the normal gland. That they are identical with the cells implanted, is evident. Much more interesting is the stroma of the tumor. It consists of connective tissue, fibroblastic in character and with infiltration (moderate) of mononuclear cells. In it are found single tumor cells and smaller and larger nests of such, situated in lymphatic radicles and in blood-vessels. One picture shows the first stuffing of a blood-vessel by the tumor cells and single groups in a branch of this vessel. Without knowing from what source the pictures have been procured, the impression is given that they are identical with the well-known pictures of the infiltration of a carcinoma of the suprarenals in surrounding tissue conveyed by the lymphatic and blood channels. The same course of metastatization is known for the malignant hypernephromata of man, that frequently produces metastases by venous circulation. The destructive nature of this tumor is shown by the finding of remnants of kidney tubules within the masses of tumor cells. There is, therefore, no doubt that the implantation of a fetal suprarenal into the kidney has resulted in the growth of a malignant tumor, a carcinoma. The direct connection between these two facts cannot be doubted and must be considered as so-called absolute evidence for the possibility of embryonal cells, under suitable conditions, to be the causative factor in the production of tumors. A single observation, of course, cannot be taken as evidence for a generalization of the opinion of the genetic origin of tumors. There is, however, no doubt that continued investigation in this direction will soon multiply the number of positive results and thus clinch the evidence scientifically. The difficulty obtaining in this investigation is, naturally, our total ignorance of the physiologic, or biologic, if you please, processes that are going on in such phenomena. Experimentally it may be possible to perfect the method and, in a certain way, establish a theory or explanation.

The author is very conservative in his conclusions and summarizes the justifiable deductions to be drawn from his report as follows:

"The transplantation of a minute fetal suprarenal has formed a growth that has taken the place of the whole upper third of the kidney. It is composed of tumor nodes and typical nests of epithelial cells. The nests of cells are invading the surrounding tissue; they infiltrate into it and cause destruction of the renal parenchyma by pressure. The tumor not only grows by continuity but has a metastatic property by entering the blood-vessels. The cells carried off with the blood will cause new nodules (metastases) in other parts of the organ. The cause of the growth of this tumor is only the independent proliferation of fetal tissue, severed from its normal connection and transplanted into foreign tissue. If then, perhaps, some features of malignant cells in man are missing, one conclusion may be made with confidence, that the separation of tissue, either artificially or naturally, in the growing fetus, can lead to a disposition toward later tumor formation; these cells must be recognized as the final cause of at least certain tumors, and by my experiments the truth of Cohnheim's or Bibert's theory is made probable and accessible to investigation."

DIAGNOSTIC AND THERAPEUTIC NOTES.

A NEW TEST FOR MUCUS IN THE STOOL.—Hecht (*Wien. klin. Wochenschr.*, 1908, No. 45).—The detection of mucus in the stool, while of considerable diagnostic importance, is not always an easy or a pleasant matter. Hecht's test simplifies the search for mucus greatly. His reagent consists of an aqueous solution of 2 per cent. brilliant green and 1 per cent. neutral red. A drop of this is mixed with a small portion of the stool and a little of the mixture examined between slide and cover-glass. The bulk of the stool is stained green while the mucus is stained red.

TEST FOR BLOOD IN THE FECES.—Messerschmidt (*Muench. med. Wochenschr.*, 1909, No. 8).—The method recommended by the writer is a modification of the Schlesinger-Holst benzidin test. Dissolve a few grains of benzidin in 2 c.c. glacial acetic acid. Rub up a piece of solid feces, the size of a pea, with 2 c.c. of water acidulated with a few drops of glacial acetic acid. To 3 drops of this suspension add 1 c.c., 3 per cent. peroxide of hydrogen, shake and add the same amount of the benzidin solution. A greenish-blue color will result if blood be present.

TREATMENT OF COLLAPSE BY MEANS OF INTRAVENOUS INJECTIONS OF ADRENALIN.—Kothe (*Therap. d. Gegenw.*, 1909, No. 2).—Adrenalin exerts a tonic effect, not only upon the blood vessels, but also upon the myocardium. The writer has used adrenalin (epiprenan) intravenously, in a variety of conditions of cardiac weakness, with marked success. The reports mention cases of collapse following spinal anesthesia, post-operative shock, severe hemorrhage and diffuse peritonitis. He injected into a vein from 10 to 20 drops of a 1:2000 solution of adrenalin, sometimes diluted with normal saline solution, sometimes not.

THRESHOLD PERCUSSION OF THE STOMACH.—v. Koranyi (*Ztschr. f. klin. Med.*, Vol. 67, Nos. 1-3).—The method of extremely gentle percussion, first introduced by Goldscheider, and by him named "threshold percussion," has proved particularly useful in determining the true outlines of the heart. Koranyi finds it equally useful in outlining the gastric bubble, *i. e.*, the larger or smaller bubble of air present in every partially filled stomach. This mass of air changes its position with the posture of the patient, so that by percussing it out, first in the erect, then in the prone, and finally in the lateral posture, the true outlines of the stomach can readily be determined.

SIGNIFICANCE OF THE CONJUNCTIVAL TEST IN TUBERCULOSIS.—Wolff-Eisner (*Muench. med. Wochenschr.*, 1908, No. 45).—The originator of the conjunctival method, in this article sums up the result of his experience in 4,000 cases. He believes that while the old subcutaneous

method and the newer cutaneous one of v. Pirquet are specific for tuberculosis, their very delicacy interferes with their clinical value in adults, inasmuch as they are positive in latent or even completely healed tuberculosis. The conjunctival method on the other hand, if positive, indicates an active tuberculosis. If a positive reaction is obtained in a clinically healthy individual, the suspicion of a tuberculous process is justified. A negative reaction, on the other hand, does not necessarily indicate the absence of a tuberculous process unless the patient is clearly not very ill. The more advanced the cases, the more usually the conjunctival reactions will be missing. Absence of the conjunctival reaction in the presence of a definite tuberculous process justifies a bad prognosis.

AN AID TO THE DIAGNOSIS OF ATONIC DILATATION OF THE STOMACH.—Carnot (*Presse méd.*, October 28, 1908).—Carnot's method for the detection of gastric atony depends upon the fact that in this condition the pylorus is patent. The patient's stomach is emptied by means of the stomach tube and 500 c.c. of water introduced. The patient remains in the erect posture for an hour, after which the water remaining in the stomach is again withdrawn as completely as possible and measured. Thereupon (or at the next visit) 500 c.c. of water are again introduced and the patient is made to lie on his right side for an hour. In this position the force of gravity enables the dilated and weakened stomach to empty itself through the patent pylorus, and at the expiration of the hour the stomach will be found empty or nearly so. If this is the case, then the greater the amount of water found in the first examination, the greater the degree of gastric atony.

THE EFFECT OF VARIOUS DRUGS UPON THE CORONARY CIRCULATION.—Eppinger and Hess (*Ztschr. f. exp. Path. u. Therap.*, Vol. 5, No. 3).—The hearts of various animals were isolated, extremely dilute solutions of various drugs were made to pass through the coronary circulation, and the effect noted. It was found that adrenalin dilated the coronary vessels while contracting those of the peripheral circulation; cholin, physostigmin and pilocarpin contracted the coronaries and dilated the peripheral vessels; barium chloride, digitoxin and strophanthin contracted both; atropin and sodium nitrite dilated both; sodium iodide was without effect. These interesting observations seem to indicate that the rational medication in true angina pectoris consists in the administration of adrenalin, atropin and sodium nitrite, the first where the general blood-pressure is low, the two last where it is high.

MAGNETIC METHOD OF DETERMINING THE GREATER CURVATURE OF THE STOMACH.—Mayer (*Przegl. lekarski*, No. 2. Abstr. in *Deutsch. med. Wochenschr.*, 1909, No. 6).—In a Polish journal, one Mayer advocates a curious method for determining the position of the greater curvature of the stomach. The patient is made to swallow a small magnet, enclosed in rubber tissue and fastened to a long silk thread. The magnet, on account of its weight, lies at the lower border of the stomach where its presence can be demonstrated from the outside by means of a compass needle. Similarly in cardiospasm, or in esophageal stricture, the side of the obstruction can be determined by means of the magnetic needle.

CORRESPONDENCE.

PARIS LETTER.

By AUGUSTE A. HOUSQUAINS, M. D.

MILK AS A THERAPEUTIC MEASURE IN GASTRIC AND ENTERIC AFFECTIONS.

The vogue which milk has enjoyed as a therapeutic measure for more than half a century, particularly in the treatment of affections of the stomach and intestines, is at present undergoing a crisis which should engage our earnest attention. As only too often happens, reaction against the popularity of a remedy may be too excessive and result in so great a discredit of a remedy that its use, in certain diseases where its benefits are undeniable, will be countenanced only in the most reluctant manner. It is true that in some cases of nephritis a milk diet is not only useless but harmful. It is also true that in infantile gastro-enteritis the results following this sort of dietary are not always gratifying. Likewise, in intestinal affections in adults, the practitioner is often disappointed when he expects milk to effect a cure. But to prescribe milk in affections of the stomach as a number of doctors are doing is really carrying the matter too far. For the error of the detractors of a milk diet in the therapeutics of gastric affections is a technical one which arises from clinical errors with regard to its employment.

Contrary to a generally accepted idea, one is justified in saying that all patients are tolerant of the use of milk. In those instances where patients manifest an intolerance there are undoubted indications that it was not administered in a way to suit them. It goes without saying that milk should always be of excellent quality. Only small quantities should be administered at a time, about 300 grs., and at regular intervals. Each ingestion of milk should be followed by a careful rinsing of the mouth. If the patient is confined to his bed, a cup of milk every three hours suffices as a diet. Moreover, radioscopy has demonstrated that this interval is necessary to assure the emptying of the contents of the stomach into the intestine. Increasing doses are not necessary; on the contrary, they are harmful. Sometimes milk may be diluted and spiced. The addition of sugar augments its nutritive value. Except in cases of chronic ailments of the stomach, the milk regimen ought to be of short duration; therefore, it is well not to prolong the time beyond two weeks. A mistake is often made by ordering milk as a drink with a repast; this may cause serious inconveniences in dyspeptics on account of over-alimentation. What is important to remember, then, is to regulate the employment of milk in the therapeutics of gastric affections and to study its indications. As is known, a milk regimen may be serviceable without other aliments, but, on the other hand, adjuncts are often permissible. An exclusive milk regimen should be administered when it is thought necessary to reduce the activity of the stomach to a minimum. This should not be lost sight of in acute and chronic gastritis and in ulcerations. In alcoholics, who suffer from gastric pains, these untoward symptoms generally disappear after some ten days or a fortnight. But it should not be forgotten that an exclusive milk diet is not without its inconveniences, for the doing away with the ordinary alimentation is accompanied by a sensation of depression which may cause some worry on the patient's part. But this should not arouse any anxiety so long as the body weight remains stationary. A remarkable fact is this.

that alimentation by a strictly milk diet need not be very abundant to maintain a fixed weight, in case the patient remains in bed. But to say that this fixity can be assured only by a ration which has fuel value in calories is theoretically insufficient. The ideas we at present entertain in regard to the requirements of the organism are surely in need of revision for it cannot but be admitted that, for a certain length of time, a strictly milk ration perfectly suffices to maintain the organism even without the administering of large quantities.

Diarrhoea must be reckoned as one of the gravest complications of a milk diet. With certain patients it is a distressing complication. Its cause, up to the present time, has not been fully elucidated. Prepared chalk and mineral waters are the best means we have at hand to combat it; calcium salts having this virtue that they increase the coagulability of the milk. When the diarrhoea does not yield to this treatment, it is necessary after some delay to modify the regimen of the patient. With other patients a milk diet is accompanied by a stubborn constipation on account of an atony of the intestinal tube. Laxatives or injections of oil are then indicated.

At times milk is ineffectual in relieving pain or stopping the vomiting. A pyloric ulcer is often the cause of this defect in the treatment. In these cases skimmed milk often gives remarkable results. It does not coagulate in the stomach and it is on account of this that the emptying of the contents of the stomach into the intestine is more readily effected than when ordinary milk, which has a tendency to coagulate, is used. But in other cases it is necessary at times to administer only mineral water for a day or two. The addition of the yolks of one or two eggs, well beaten with a little sugar, constitutes a diet that is doubtless insufficient, but has this in its favor that by its use one is able to reestablish with considerable rapidity a milk diet with those patients who have been decidedly difficult to treat. Again, the addition of alkalies to the milk is an adjuvant of the first order in the treatment of pains, but it is well not to prolong their use during the time when milk is the only staple of food prescribed. As soon as it is possible to stop the strictly milk diet, recourse may be had to a diet which is diversified by other foods. Beginning with milk porridge, eggs may follow, then nutritive pâtés, rice cakes, purées of dried vegetables and potatoes, sweet biscuit, and by easy stages there is evolved a diet which is progressively more and more substantial though always devoid of irritants to the gastric mucous membrane.

These are some of the rules based upon observation and clinical experimentation, which, when followed by the practitioner, yield precise results in the treatment of gastric diseases. In spite of their empiricism, in spite of the fact that it is somewhat humiliating to the physician not to be able to explain the mode of action of a therapeutic measure, it must be admitted on all sides that milk, in the hands of those who have enough judgment to know how to administer it, is the alimentary and therapeutic remedy of the first order at our command. No other diet can replace it, and moreover to conceive of any substitute can be interpreted only as a sheer waste of time.

In another manner may be explained the campaign which is being waged against the use of milk in gastric affections, and which is not by any means terminated. The question that is agitating those opposed to the milk diet is whether it should be prescribed as a diet, pure and simple, in every case without regard to dosage, or whether the ration should be regarded in the light of a therapeutic measure to be prescribed

only when indications arise that demand a precise amount to be administered. Only good can come out of this discussion, for when the study of the clinical and therapeutic indications for a milk diet is perfected patients cannot but be benefited; and furthermore, when the clinicians will have achieved a knowledge of the rules governing the administration of the milk diet, each morbid entity will be benefited without suffering from any inconveniences.

April 10th.

THE ADVANTAGES OF PAIN.

EDITOR INTERSTATE MEDICAL JOURNAL:

To lessen human suffering, a broader knowledge of the psychology of pain—as pain—is needed. The psychology of pain, in its relation to signs of disease, to moral temperament and as an act of begetting a knowledge of the nervous states of the body, is very largely an unexplored continent. Only a few islands of scientific intelligence along the coasts of the continent of pain have been discovered.

As a universal ground of sensational knowledge (concerning the distressed condition of our common nerves of sensation) how inadequate are such definitions of "Pain," as those given in Gould's Pocket Medical Dictionary of 30,000 words, of 1907! We turn to page 492 and we read, as the generic definition of "Pain," the following: "Pain:—suffering; a distressing sensation." Then follow a few special applications of this general definition of "Pain" to distressing conditions of the joints, bones, and uterus. And, lo, the medical lexicographer's descriptions of the infinitely numerous and complex "pains" of the human body and race are proudly ended, with that imperturbable serenity common to those whose literary and scientific ability is expressed in the art of composing dictionaries.

Suppose, however, that our desire for facts is stronger than our awe or trembling at the knees because of the presence of the lexicographer! And, having gratefully accepted Gould's definition of "Pain," as "suffering; a distressing sensation," in order to make sure of our ground, we finally ask this dictionary-maker the meaning of the word "sensation." We turn to page 591 and we find "sensation" defined by exactly two words, viz.: "Corporeal feeling." But, since among the 30,000 words of this dictionary the words "feeling" and "feel" are not to be found or defined, and in order to have some intelligible explanation of what the word "feeling" (in its relation to "sensation") means, we are forced to consult our unabridged Webster. Here finally we discover that we are out of the woods, for "to feel" is, according to Webster, "to have sensation excited by contact."

Possibly no medical scientist would quarrel with this definition of "feeling" as "sensation excited by contact"; i. e., with the sensory nerves. The psychologist and the physician can both accept this definition. The Lion of Allopathy and the Lamb of Psychotherapy can both lie down together in this corner of the old lexicographer's pasture of definitions. Both the Lion and the Lamb would possibly express themselves willing to admit the following principle, namely: In order for any human being to "suffer" by "contact"—in a word, for any human being to experience

"pain," as defined by Gould: "suffering; a distressing sensation"—two conditions are necessary: first, some objective or subjective force, which is capable of awakening the "distressing sensation" when it comes into contact with the sensory nerves of the human body; secondly, a common nervous center of sensory nerves in the body to which the awakening force is related, when it excites the "suffering; distressing sensation" of pain. And, if we attempt to classify our "sensations" in their relation to the disorder or order of the sensory nerves, and strictly in their relation to the physiological knowledge such "distressing sensations" impart—as knowledge—then, it would seem, that "Pain," as "suffering," and "distressing sensation," should be psychologically studied as that special class of sensations which can alone give us any rational basis for our subjective knowledge of our sensory nerves, as the teachers of the nature of our bodily disorders.

Briefly, painful sensations are those feelings which give us our personal knowledge of our own bodily or psychiatric disorders. As comfort implies the existence of sensations of bodily order, so discomfort means the continuance of sensations of physiological disorders. Thus, to lesser human suffering, a broader knowledge of the psychology of pain—as pain—is needed.

H. G. W.

OBITER DICTA FROM FOREIGN JOURNALS.

THE CENTER OF AWAKING.

"The existence in the brain of a center charged with the function of sleep similar to the language and writing centers and the centers for the movements of the various members of the body," says Dr. Bérillon, in an interesting article entitled "Le Centre du Réveil," in the *Gazette des Hôpitaux* of April 6th, "has been admitted by divers authors. In an article which appeared in *La Nature*, in 1901, Dr. Cartaz stated a number of facts in substantiation of the hypothesis of a sleep center. In my opinion, after observing the phenomena which occur in the production and cessation of sleep, I am strongly inclined to believe that there is an awakening center." The fact which gives support to the supposition that there is in the brain a center of which the special function is to keep us awake, is that by the intervention of will-power we can war against the inroads of sleep and even retard its appearance. It is true that this resistance is but temporary and can be exercised only on condition that the need for mental repose is not too great. A second proof is the aptitude certain persons possess of being able to awaken themselves voluntarily during the night at an hour they have fixed upon in advance. Thus the observation has often been made of a person who, having made up his mind to arise at a certain hour, sleeps profoundly until the moment he ought to awaken, and then awakens spontaneously. The habit of awakening every morning at the same time enters into the same category of facts. This can be explained by the intervention of a certain cortical interference which has the power of awakening, similar to the agitation induced by the disturbance caused by an alarm clock. It is a fact that certain persons have the singular gift of influencing, by personal action, the function of sleep. Napoleon was gifted in this way and in the "Memorial of St. Helena" is related that he could induce sleep so soon as he felt the desire. The physiologist Muller in his "Manual of Physiology" (Vol. II., p. 549) writes that by willing it he could promptly fall asleep. But the most interesting of all facts is this that it is possible to interrupt sleep, both in man and in animals, with the greatest facility. Peripheric excitations responsible for this break are caused by the senses of sight, hearing and touch. The slightest ray of light falling on the eyes will suffice to awaken an animal in deep slumber. At the first indications of daybreak almost all birds awake. And it is not at all rare to observe that birds in cages will at once begin to sing when a room that has been dark for some time is suddenly lighted by artificial means, thus conveying to them the illusion of daylight. If birds are easily awakened by light, it can readily be understood how necessary darkness is to bring on sleep and that this is true is best illustrated when there is an eclipse.

Human beings are just as easily aroused when a light is suddenly thrown on their faces. Noises cause the same action. A noise that is far from startling, but to which persons are unaccustomed, will not only prevent sleep but awaken a sleeper out of a profound slumber. A cannon on a warship fired at sunrise awakens rudely a passenger newly embarked, but the effect produced upon him by this loud noise grows less and less from day to day, and ere long he is not incommoded at all,

while for the sailors, though accustomed to the sound, it never lacks as an efficacious means of arousing them from their deepest slumbers. It is certain that the function of sleep is greatly influenced by the sort of education which can assist in interrupting the process. Thus awakening can easily be induced if one calls the name of the sleeper. Carpenter in his remarkable article on sleep (*Cyclopedia of Anatomy and Physiology*, Vol. IV., p. 683) cites the instance of a man being at once aroused when his name was mentioned in close proximity to his ear. In a barracks the bugle-call, for the purpose of awakening the men, is more effective than the trumpet, which is sounded for other duties. These divers examples confirm the opinion that men plunged in the depths of sleep are less indifferent to psychic influences than their physiognomies would lead us to suppose. The excitations coming from contact with the periphery of the body have a less active influence. To arouse a sleeper who is deep in sleep, it is often necessary to shake him in no mistakable manner. On the other hand, the least current of air which strikes the face of one who is really in a torpid state, on account of being held in the fastnesses of sleep, is the means of awakening him almost at once. The same happy results are achieved when cold water is thrown on the sleeper's forehead or on his eyes. This action on the part of cold water is again illustrated in those persons who really are not completely awake until they have taken their cold plunge. There are other excitations which have a marked influence in the phenomenon of what is known as the awakening. Such are the visceral sensations excited by hunger and thirst, and by the desire to relieve the organism by urination, etc. These peripheral and visceral excitations interrupt the course of sleep by a mechanism identical with the interference produced by bugle-calls, the striking of a clock, trumpet-sounds or the verbal message delivered in close proximity to the sleeper. That these excitations result in the same way must convince us that they act directly on a cerebral center, the function of which is to bring about the awaking of a person and keep that person awake.

As we have said before, the nerves which transmit, surely and rapidly, the order to awake are the optic, the auditory, and the nerves of the face; therefore, one is justified in supposing *a priori* that the localization of the sense of awaking is situated in the brain near the center of vision, audition and facial expression, inasmuch as it is through these that the process is evolved. Again, this special center should be found near the center of tactile sensibility. Hence, it is within the bounds of reason to look for it at the base of the brain in the middle line. The experiments of Raphaël Dubois on marmots and hibernating animals have demonstrated that it is on account of carbonic poisoning that inhibition of the center of the function of sleep takes place. This center is found in the marmots in the anterior part of the aqueduct of Sylvius and near the base of the third ventricle. In a similar mechanical way sleep, induced by anæsthetics, is effected. This somnolent state manifests itself when the center of awaking, inhibited by the intoxication resulting from inhalation of an anæsthetic, is somewhat paralyzed, and is incapable of exercising the function which makes for keeping a person awake.

And here it would not be out of place to remark that in sleeping sickness the accumulation of trypanosome in the blood vessels at the base of the brain, constitutes a mechanical obstacle which causes interference in the function of the center of awaking. Hence, the waking state more than the sleeping state depends on the integrity of this center, for although influences such as psychic interference, toxic inhibition, organic

alteration, compression from a tumor, act on the center of awaking in such a way as to make it incapable of performing its proper functions, it is yet possible to awaken a subject but impossible to keep him awake. Our inference then ought to be that the center of awaking is a motor center presiding over an ensemble of motor activities from which results not only awaking, but the power to remain awake. A man in whom the center of awaking is altered, finds it is just as impossible to remain awake as the man who having been struck in such a manner that there is an injury of the third left frontal convolution, finds it impossible to speak. If one allies himself with those who are of opinion that there is an unvarying relation between the seat of cerebral lesions and the distribution of the paralytic phenomena which are the consequences, one ought to be inclined to the view that in the cases in which patients present, as principal symptom, a prolonged and unconquerable somnolence, the lesion must involve the center of awaking.

Now, although the facts collected on this subject by the anatomophysiologists are not any too numerous, one cannot but think that they tend to confirm this hypothesis. In a lecture on the symptom of sleep, as a concomitant of cerebral tumors, Prof. Raymond has related many facts which go far in demonstrating the possibility of a cerebral center with lesions that show, as the most decided symptom, a somnolence which cannot be resisted by the patient. In fact, such tumors as glioma and sarcoma, situated oftenest in the neighborhood of the regions that Raphaël Dubois has pointed out as the seat of carbonic auto-intoxication in marmots, provoke in the afflicted a state of somnolence in which they remain until death occurs. In this connection the case reported by Dr. Soca appears to be most convincing. The salient feature of his case was that though the patient remained for a long time in a state of somnolence, he could easily be aroused, but could not be kept awake for any length of time. The autopsy showed the existence of a sarcoma which occupied the peduncle and the base of the third ventricle.

The point upon which Dr. Bérillon dwells is that all the peripheric excitations which either induce sleep or cause its cessation are really psychic excitations informed with a most active influence. This fact had already occurred to Lasègue, and in his lecture delivered in 1881 he expresses his astonishment in the following words: "In the first place there are two kinds of sleep with decided differences—the natural and the artificial. The latter is not of so frequent occurrence that it does not astonish the physician. No function, in fact, ever appeals to the investigator as something that can be reproduced by an experiment; therefore, when we study a function, our attitude in the matter resolves itself into the thought of a chemist when he makes an analysis: synthesis must be always interdicted. But there is one exception and that is sleep, for this function can be reproduced, and by reuniting a number of conditions that an analysis has made known to us, we are able to provoke it, while on the other hand we are not able to produce either circulation or respiration, despite our almost exhaustive knowledge of the laws of circulation and respiration. That we can produce sleep, is a unique fact; but this should not be forgotten, that sleep does not necessarily imply the intervention of an external action on the special organ charged with the function of maintaining a person in a waking state. By suspending the function of this special organ—any excitation that might result in wakefulness being suppressed—the person passes necessarily into a condition of sleep.

Hypnotism as a narcotic agent is an excellent case in point, for its action can readily be explained on the ground that it inhibits the center

of awaking, the inhibition arising from a psychic influence or a physical action; and analogous processes exercised on behalf of a contrary condition cause the awakening or termination of the hypnotic state. Now although the facility with which certain subjects are hypnotized struck an observer such as the patient Lasègue with surprise, he was yet more impressed by the fact of the facility with which the awakening could be produced. In his article on Braidism in the *Revue des Deux Mondes* in 1881, the publication of which at the time created quite a sensation, he eloquently expatiates on this fact. The importance which he attached to the matter can best be expressed by using his own words, for what he said really constitutes the dominating thought of the science of hypnotism. "When a patient is dominated by hypnotism, his sense of sight in abeyance, his eyes convulsed, his senses inert, his limbs rigid," writes Lasègue, "how are we going to avoid the depression which, before long becomes, alarming, if we do not foresee some way out of the dilemma? And to whom are we indebted but to Braid for an ingenious discovery to overthrow these strange combinations? We try in vain to arouse the patient by energetic means, such as loud noises and sensations productive of pain, but his condition being apparently lifeless he fails to respond to familiar excitations since the functions thereby stimulated are to all intents and purposes destroyed. But the simple procedure of a breath of air on his eyes breaks the charm, and forthwith he opens them; and without passing through a transitory state, changes from deep lethargy into complete wakefulness. This sort of *Lebens-Erreger* is unique, painless and dependable. I recall that one day one of my students, who had written an excellent thesis on hypnotism, put a patient to sleep and forgot to awaken her. This happened on visiting day at the hospital. When the parents arrived and found their daughter mute and immobile, they attempted to arouse her; and though their excitement waxed intense when they saw that their efforts were fruitless, and loud enough language was used to recall any one under normal circumstances to consciousness, the results were *nil*. The superintendent of the hospital was sent for and showed at once that he was at a loss as to how to relieve the situation. Thereupon he sent word to the student, who solved the problem instantaneously. Now, although the lethargy had lasted some four hours, the awakening was accomplished with the greatest ease. Thus we have at our command a method that is absolute. To cut short so complicated a state as the hypnotic by means that are simplicity itself, is indeed a revelation! Whether the air is blown on to the eyes of the patient by the mouth, or wafted by a fan, the effect is always the same."

The simple procedure involved in awaking a hypnotized person by air blown on the face, is also just as effective in ridding a sleeper of natural sleep, no matter how profound it be. The explanation is that a peripheric excitation is directly transmitted by the nerve endings to a cerebral center, the return of whose activity is marked by the recurrence of an awakening. The disposition to be hypnotized and at once to come out from the hypnotic state under determined peripheric excitations, evidently results from hereditary aptitudes. The exigencies called forth by life and education have progressively developed in man an evolution in the center of awaking that is being, functionally speaking, more and more perfected. The experiments in hypnotism are the most decisive demonstration of the mechanical perfection which this center is acquiring, since what suffices to lessen, activate, suspend, or arouse its mechanism is derived from certain peripheric excitations of the psychic or physical sort.

BOOK REVIEWS.

CLINICAL DIAGRAMS, DESIGNED FOR THE GRAPHIC REPRESENTATION OF CLINICAL PHENOMENA FOR PRESERVATION, WITH THE NOTES OF CASES. By James C. Wilson, M. D. J. B. Lippincott Co., Philadelphia. Price 50 cents net for 25 sets.

These diagrams are pictures of the front, rear and side view of the male and female head and trunk, with the position of the bony landmarks indicated in outline. The various physical findings may be indicated upon them schematically, and the drawing attached by means of mucilage or otherwise to the case record.

BACTERIAL FOOD POISONING. A Concise Exposition of the Etiology, Bacteriology, Pathology, Symptomatology, Prophylaxis and Treatment of So-Called Ptomaine Poisoning. By Prof. Dr. A. Dieudonné, Munich. Authorized Translation, edited, with additions, by Dr. Charles Frederick Bolduan, Bacteriologist, Research Laboratory, Department of Health, City of New York. 8vo, 128 pages. Cloth. Prepaid, \$1.00 net. E. B. Treat & Co., 241-243 West 23d Street, New York.

Prof. Dieudonné's manual on "Bacterial Food Poisoning," published last year, is known as one of the best presentations of the subject. Poisoning due to diseased or decayed meat, fish, cheese, ice cream, potato, canned goods and the like, are taken up in turn. Their etiology, bacteriology, clinical features, diagnosis, prophylaxis and treatment are discussed. It will be found a valuable compend for ready reference.

ROTUNDA PRACTICAL MIDWIFERY. By E. Hastings Tweedy, Master of the Rotunda Hospital, and G. T. Wrench, late Assistant Master. London. Oxford University Press. 1908.

ROTUNDA MIDWIFERY FOR NURSES AND MIDWIVES. By G. T. Wrench. Oxford University Press.

The first mentioned book is, in our opinion, one of the best discussions, if not actually the best discussion, in the English language of the practical aspects of obstetrics. A book of this sort will, for obvious reasons, prove of incalculable value to the student. But the reading of these short, precise sentences, pregnant with useful and valuable advice, will also afford much pleasure to the practitioner who wishes to refresh his memory, or to acquaint himself with the most appropriate methods of dealing with normal and complicated labor.

Equally fortunate seems Wrench in the manner in which he presents his subject in the second volume mentioned above. The book is excellently adapted for use as a text-book for nurses and midwives.

SELF-HELP FOR NERVOUS WOMEN. By John K. Mitchell, M. D., Fellow of the College of Physicians and Surgeons of Philadelphia, etc. Published by J. B. Lippincott Co. 1909. Price \$1.00.

This interesting little volume is intended not only for those who have to deal with nervous women, but for the patients themselves. It is not technical, but is written in the plainest and briefest manner, and contains earnest and convincing talks about food and rest, air and exercise, self-control, discipline, the training of the nervous system, and how to form and confirm good habits of thoughts and action.

It is an excellent book to be placed in the hands of intelligent women who are either nervous or apprehend nervousness.

HANDBUCH DER GEBURTSHILFE. Herausgegeben von F. von Winckel in Muenchen. Dritter Band, dritter Theil. Wiesbaden, Verslag von J. F. Bergmann.

This volume contains the final chapter of Winckel's history of gynecology, an exhaustive study of the pathology of the fetus, and ends with one of the most valuable essays contained in the entire work,—medico-legal obstetrics;

almost 400 pages, written by Stumpf, of Munich, are devoted to a thorough discussion of all the various relations of obstetrics to legal medicine.

This volume, representing the third part of the third volume, completes Winckel's *Handbuch*, a most remarkable work, which presents every detail of our present knowledge of obstetrics.

THE RECTUM. ITS DISEASES AND DEVELOPMENTAL DEFECTS. By Sir Charles B. Ball, Regius Professor of Surgery in the University of Dublin, etc. Oxford University Press. 1908. Price, \$10.50.

This thorough and excellent presentation of rectal diseases is based upon a course of Lane Lectures on Diseases of the Rectum, delivered by the author at San Francisco in 1902; and the Erasmus Wilson Lectures on Adenoma and Adeno-Carcinoma of the Rectum, delivered at the Royal College of Surgeons, England, in 1903.

The author's clear and attractive style and the unusual excellence of the illustrations, make this book one of the most notable volumes of the Oxford Medical Publications.

A SYSTEM OF DIET AND DIETETICS. Edited by G. A. Sutherland, M. D., F. R. C. P. Oxford Medical Publications. London. Henry Frowde, Oxford University Press; Hodder & Stoughton, Warwick Square, E. C. 1908.

Until our knowledge of physiology is more perfect than at present, the scientific basis of dietetics must be an unstable one. Nevertheless, more or less empirically, experience has shown the value of dietetic methods in disease. In this volume, the leaders of the English medical profession have, in successive chapters, set down their views and the results of their experience. After a delightful introductory chapter by Sir Lauder Brunton and an entertaining one by Campbell on the evolution of man's diet, the dietetics of the various diseases are discussed in successive chapters, each by a different clinician. It is inevitable that there will be some overlapping and that the various authors will not always be found in entire agreement, but nevertheless the book is of importance as representing the best English practice. It will be found invaluable as a book of reference.

THE HERTER LECTURES (New York, 1908) ON THE FLUIDS OF THE BODY. By Ernest H. Starling, M. D., F. R. C. P., F. R. S. Chicago: W. T. Keener & Co., 90 Wabash Ave. 1909. Price \$2.00 net.

These lectures by the professor of physiology in University College, London, were delivered last year at the Bellevue Hospital and Medical School, under the foundation of Dr. C. A. Herter. They consist primarily of a clear and complete account of the physiology of the lymph, its production, the problems of osmosis and molecular tension, the absorption and out-put of the interstitial fluids and of the fluid balance of the body. An additional lecture is devoted to the consideration of the clinical bearing of these matters, mainly relating to the problems connected with the production of dropsy. The volume forms a valuable contribution to the new science of pathologic physiology which is taking its place by the side of its elder sister, pathologic anatomy.

HANDBUCH DER GYNAEKOLOGIE. Herausgegeben von J. Veit in Halle. Zweite voellig umgearbeitete Auflage. Dritter Band, erste und zweite Haelfte. Wiesbaden. Verlag von J. F. Bergmann. 1908.

To fully realize and appreciate the progress made in gynecology within the last decade, one only needs to compare this new second edition of Veit's *Handbuch* with the first one, published just ten years ago.

The first part of the third volume, just out, contains four essays devoted respectively to menstruation, diseases of the vagina, hematocoele, and sarcoma of the uterus. The second part, in itself a volume of 400 pages, deals solely with uterine cancer and chorionepithelioma. Winter describes the anatomy; Koblanck the etiology, symptomatology, diagnosis and radical operation of carcinoma of the uterus; Fromme details the various palliative methods of treatment of inoperable cancer and favorably mentions the acetone treatment described by Gellhorn, of St. Louis. Sarwey closes with an article on carcinoma in its relation to pregnancy. The paper on chorionepithelioma is by Veit, the editor of this splendid work.

GONORRHEA IN WOMEN. By Palmer Findley, M. D., Professor of Gynecology in the College of Medicine of the University of Nebraska, Omaha, etc. C. V. Mosby Medic. Book and Publ. Co., St. Louis. 1908.

The continued work of a large number of investigators has finally led to an appropriate appreciation of the importance of gonorrhea as an etiologic factor in the causation of various pathologic conditions that confront the physician. A thorough acquaintance with the literature on gonorrhea has become an indispensable requirement for the practitioner. The literature is enormous and published in all languages. The profession, therefore, will be grateful to the author of this volume who has studied carefully this literature and has attempted to present the views of the best workers in the field, on every question relating to the intricate problem of gonorrhea in women.

We regret to state that the pleasure of reading this book is somewhat marred by the continuous but not systematic change in type, by numerous typographical errors and the misspelling of many names of well-known authors.

CONSTIPATION AND INTESTINAL OBSTRUCTION (Obstipation). By Samuel Goodwin Gant, M. D., LL.D. Illustrated. Price, cloth, \$6.00 net. W. B. Saunders Company, Philadelphia and London. 1909.

The writer has prepared a thoroughly practical work on the non-medicinal and surgical methods of treating constipation. After a review of the anatomy and physiology of the intestine, he takes up in turn the various causes of constipation and obstipation. The bulk of the volume is devoted to treatment, Chapters are devoted to diet, gymnastics, hydrotherapy, massage and the like, and the final third of the volume to operative procedures. While devoting a chapter to medicinal treatment, the author emphasizes the fact that in the great majority of cases of constipation, the use of drugs is a mistake. Successful treatment depends upon accurate diagnosis, and constipation due to neurosis or to faulty habits can be cured only by proper psychic and hygienic methods. Finally the book should be of great value to the general practitioner in calling his attention to the fact that, far more frequently than he is apt to suppose, surgical interference alone can produce a permanent cure of constipation, since the mechanical reasons for sluggish evacuations are by no means rare.

MEDICAL INSPECTION OF SCHOOLS. By Luther Halsey Gulick, M. D., and Leonard P. Ayres. Russell Sage Foundation. Charities Publication Committee, 105 East 22d Street, New York. 1908. Price \$1.00, postpaid in the United States.

There seems to be a general impression in America that medical inspection of school children is still experimental and on trial, and that we are leaders in this work. The reverse of both these impressions is true. Brussels has had inspection since 1874, and Paris since 1884. The work is systematically carried on in France, England, Germany, Belgium, Switzerland, Bulgaria, Japan and in the Argentine Republic. Our country is among the last to take up the work extensively. The movement has two distinct aspects. The one is directed toward the direct benefit of the children and schools examined; the other has for its object the accumulation of statistical information regarding the prevalence, nature and degree of physical and mental defects of school children in order to form a broad, scientific basis of knowledge whereby medical inspection and education itself may be made more efficient. The volume under consideration is one of the by-products of the "Backward Children Investigation," a research supported by the Russell Sage Foundation for the purpose of studying so-called "retardation" among school children. It will be found a mine of information on the subject and is indispensable to all workers in this field. One of the most interesting results obtained by the authors is a body of statistical evidence that seems to disprove the notion generally held that physical defects as such have a distinct part in causing mental retardation among school children. One defect that this work shares with practically all other researches on the subject is that it is limited to city children. There is great need of similar work among suburban and country school children.

DIE HYGIENE DES OHRES. Von Dr. Paul Maas. Wuerzbürger Abhandlungen aus dem Gesamtgebiet der praktischen Medizin. Curt Kabitzsch (A. Stuber's Verlag), Würzburg. 1909. Price, paper, M. 0.85.

In this monograph the reader will find clearly and concisely stated the leading points in the prophylaxis and treatment of aural disorders.

INFANTS' MILK DEPOTS AND THEIR RELATION TO INFANT MORTALITY. The New York Milk Committee of the New York Association for Improving the Condition of the Poor.

The work of the New York Milk Committee described in this book is directly in line with similar work done by our own Pure Milk Commission. The New York Committee maintains seven infants' milk depots with trained nurses in charge, and with a corps of twenty-nine physicians of all nationalities conducting classes for tenement mothers after the model of the French *Consultations de Nourrissons*. Statistical tables, maps, diagrams, facsimiles of record charts in use by the committee, and photographs illustrating all phases of the work, are printed, and the booklet is a mine of information concerning the organization, cost and maintenance of infants' milk depots.

ATEMKUREN MIT 115 REZEPTEN. Von Dr. med. Henry Hughes, Wuerzburg, Curt Kabitzsch (A. Stuber's Verlag), 1909.

This monograph treats, with true German exhaustiveness, all phases of respiratory therapeutics. Accurate instruction is given in prescription form for the utilization of respiratory gymnastics in the various respiratory, circulatory, nervous and constitutional diseases, and if the writer sometimes shows a tendency to exaggerate the importance of this branch of physical therapeutics, we can readily forgive him in view of the solid contributions he has made to our knowledge of an unduly neglected method.

DIE ERWEITERTE VAGINALE TOTALEXSTIRPATION DES UTERUS BEI KOLLUMKARZINOM. Von Dr. Friedrich Schauta, Professor der Geburtshilfe und Gynaekologie an der Wiener Universitaet, etc. Verlag von Josef Safar in Wien, 1908. Preis: Mk. 6.00.

While to-day the majority of operators seem to favor the abdominal methods in operations for cervical cancer, the vaginal methods still have their defenders. Foremost among these stands Schauta, the well-known exponent of the vaginal route in gynecologic operations. In this volume he gives a detailed description of his operations, well illustrated in five colored plates, describes the exact findings, both macroscopic and microscopic, in more than 250 cases, and records exactly the immediate and late results of these operations. A careful study of this excellent monograph leaves little doubt that the vaginal method as executed by Schauta is well able to compete with the very best results obtained with the abdominal operation.

LEHRBUCH DER ARZNEIMITTELLEHRE UND ARZNEIVERORDNUNGSLEHRE UNTER BESONDERER BERUECKSICHTIGUNG DER DEUTSCHEN UND OESTERREICHISCHEN PHARMAKOPOE. Von Dr. H. P. Tappeiner, Ord. Professor des Pharmakalogischen Instituts der Universitaet Muenchen Siebente, neu bearbeitete Auflage. Leipzig. Verlag Von F. C. W. Vogel. 1908. Price, 8 Mkt.

This is a text-book of therapy based upon the German and Austrian pharmacopeia. The arrangement of the subject matter is quite different from most of the text-books of native authors. Drugs, serums and other means of therapy are classified according to their therapeutic action and not upon their physical or chemical characters. Quite an extensive symptomatic therapy, based, however, upon the most rational indications, is expounded in this volume. The indications set forth are robbed of all theoretical and empirical influences and only the most absolute and accepted actions and effects are included. This makes the volume exact, dependable and free from all the questionable therapy which has been added to so many text-books on this subject merely for the sake of completeness. It can be heartily recommended to the profession of this country.

GYNAEKOLOGIE UND GEBURTSHILFE IN IHREN BEZIEHUNGEN ZUR OPHTHALMOLOGIE. Von Dr. Ernst Runge. Universitaets-Frauen-Klinik in Berlin. Verlag von Johann Ambrosius Barth in Leipzig. 1908. Preis: Mk. 4.25.

Both the normal and pathologic functions of the female sexual apparatus stand in close relation to the functions of other organs of the body. Their relations to the nervous system or the gastrointestinal tract have been extensively studied and to-day are well understood. Runge has collected in this volume all the facts known concerning a mutual influence of both the genital apparatus and the eyes upon each other. These relations certainly have not heretofore aroused that amount of interest on the part of the profession which they seem to deserve. Not less than 784 contributions bearing on this subject

have been found by the author who gives a clear and complete digest of this immense material. The volume will prove of special interest to the gynecologist and ophthalmologist, but contains enough information of practical value to the general practitioner to repay a careful perusal.

JAHRBUCH UEBER DIE LEISTUNGEN UND FORTSCHRITTE AUF DEM GEBIETE DER PHYSIKALISCHEN MEDIZIN. Begrundet und herausgegeben von Prof. Dr. Ernst Sommer, Direktor der Universitaets-Poliklinik fuer physikalische Therapie in Zuerich, unter Mitarbeit zahlreicher Autoren auf dem Gebiete der physikalischen Medizin. Mit 8 Illustrationen im Text und Abbildungen auf II Tafeln. I. Jahrgang. Leipzig. Mk. 10.

The remarkable advances made in the treatment of diseases by physical means are incorporated in this exhaustive treatise in a very satisfactory manner. The scientific explanation and indications for each individual kind of treatment are considered at length and probably this part of the volume is the most commendable because it lifts this form of treatment from the more or less empirical basis upon which it is usually administered. Balneotherapy, electrotherapy, fangotherapy, heliotherapy, hydrotherapy, phototherapy, physicaltherapy, radiumtherapy, röntgentherapy, effect of fluorescent bodies, lighttherapy, are discussed in detail with their peculiar effects and results illustrated by case reports. The subject as presented in this volume should certainly awaken new interest and more study along these lines, especially in diseases which do not react favorably to other forms of medication.